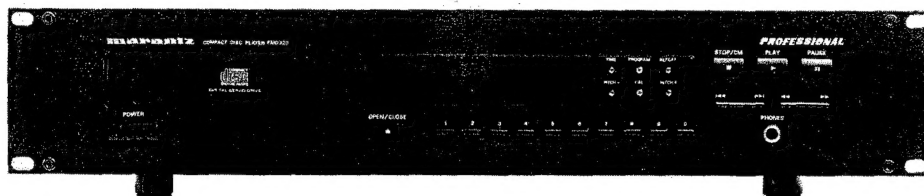


# Service Manual

74 PMD320/02B, U

74 PMD321/02B, U

Compact disc Player



COMPACT  
disc  
DIGITAL AUDIO

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Please use this service manual with referring to the user guide (D.F.U.) without fail.

# marantz®

## model PMD320 / PMD321

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#### CANADA

LENBROOK INDUSTRIES LIMITED  
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CANADA  
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FAX : 416-831-6936

#### EUROPE

MARANTZ EUROPE B.V.  
P.O.BOX 80002  
BUILDING SFF2  
5600 JB EINDHOVEN  
THE NETHERLANDS  
PHONE : +31-40-732241  
FAX : +31-40-735578

#### PROFESSIONAL-USA

SUPERSCOPE TECHNOLOGIES, INC.  
MARANTZ PROFESSIONAL PRODUCTS  
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MARANTZ EUROPE B.V.  
P.O.BOX 80002  
BUILDING SFF2  
5600 JB EINDHOVEN  
THE NETHERLANDS  
PHONE : +31-40-732241  
FAX : +31-40-735578

#### AUSTRALIA

MARANTZ AUSTRALIA  
3 Figtree Drive  
Australia Centre  
Homebush, NSW2140 AUSTRALIA  
PHONE : +61 2 742.8311  
FAX : +61 2 7643074

#### HONG-KONG

FORWARD INTERNATIONAL CORP. LTD.  
15 TH FLOOR, REGENT CENTRE,  
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PHONE : +852 521-0883  
FAX : +852 521-7835

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10200 THAILAND  
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FAX : +66 2225 8871

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FAX : +886 (2) 5630415

#### MALAYSIA

WO KEE HONG ELECTRONICS SDN. BHD.  
NO. 102 JALAN SS 21/35, DAMANSARA  
UTAMA, 47400 PETALING JAYA,  
SELANGOR DARUL EHSAN,  
MALAYSIA  
PHONE : +60 3-7184666  
FAX : +60 3-7173828

#### SINGAPORE

WO KEE HONG (SINGAPORE) PTE. LTD.  
29, LENG KEE ROAD  
SINGAPORE 0315,  
PHONE : +65 475-4555  
FAX : +65 475-8623

#### JAPAN-Technical

MARANTZ JAPN INC.  
35-1, 7-chome, Sagamiono  
Sagamihara-shi, Kanagawa  
Japan  
PHONE : +81 427 48 2181  
FAX : +81 427 48 0889

#### JAPAN-Parts-Order

MARANTZ JAPN INC.  
35-1, 7-chome, Sagamiono  
Sagamihara-shi, Kanagawa  
Japan  
PHONE : +81 427 48 1013  
FAX : +81 427 48 9190

#### 日本マランツ株式会社

本社 〒228 神奈川県相模原市相模大野7丁目35番1号  
営業本部 〒150 東京都渋谷区恵比寿南1丁目11番9号

### SHOCK, FIRE HAZARD SERVICE TEST:

**CAUTION:** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins ( with unit NOT connected to AC mains and its Power switch ON ), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard NO.1492.

In case of difficulties, do not hesitate to contact the Technical  
Department at above mentioned address.



## 2. CAUTION

### LASER NOTE:

- DANGER** — Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
- CAUTION** — Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
- CAUTION** — The use of optical instruments with this product will increase eye hazard.

THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT PROPERLY QUALIFIED SERVICE PERSONNEL.

### LASER BEAM RADIATION SPOT

#### Laser Diode Properties

Material: Al GaAs

Wavelength: 780nm  $\pm$  20nm

Laser Output: Continuous Wave max. 0.5mW

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

### ESD

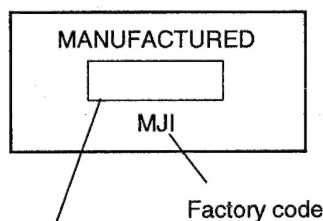
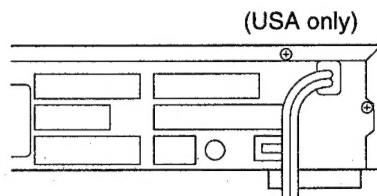
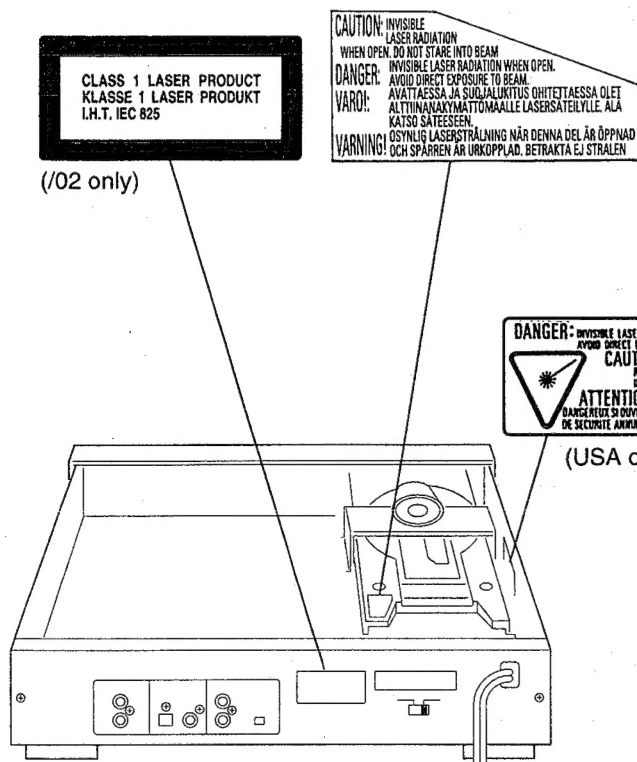


All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).

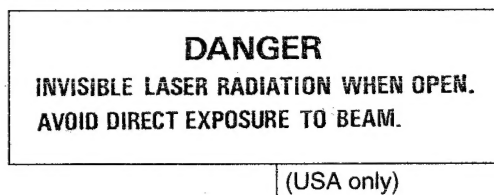
Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.

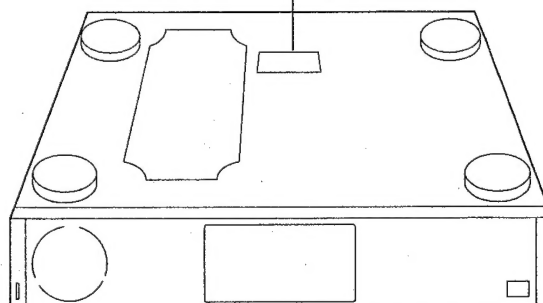
Keep components and tools also at this potential.



Manufactured year and month



(USA only)

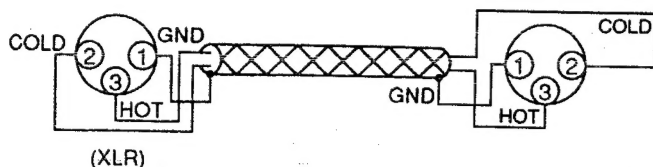


### 3. NOTES ON BALANCED OUTPUTS CONNECTORS (PMD321 only)

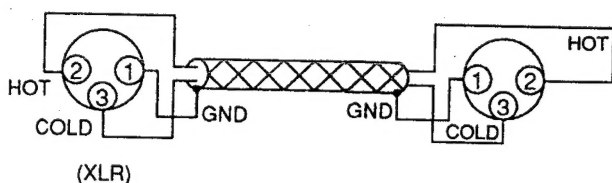
The BALANCED output connectors uses XLR connectors.

There are two types professional-type internal wiring methods for XLR connectors.

#### 1. USA method (Pin 2=COLD, Pin 3=HOT)



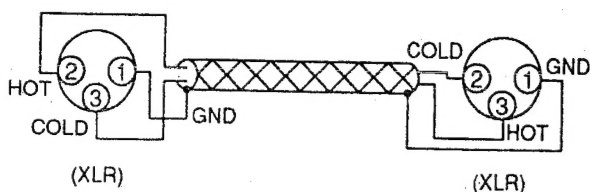
#### 2. Europe method (Pin 2=HOT, Pin 3=COLD)



The models use the Europe method described in 2 above.

When XLR connector cables are used and if your preamplifier or main amplifier uses the USA method, the reproduced signal may be out of phase.

In this case, change the connections of pin 2 and pin 3 of one of the XLR connectors of the cable to the Europe method. Also when you use an XLR balanced cable (see illustration below) and if the preamplifier or main amplifier uses the Europe method, change the connections of pin 2 and pin 3 of one of the XLR connectors of the cable to the USA method.



Now the signal can be reproduced in proper phase.

### 4. SERVICE MODE

#### 1. How to enter into the Service Mode

- Turn the power on while pressing at least 2 of [STOP/CUE], [PLAY], [NEXT], [PREV] keys.

#### 2. Mode 0 (Display P 00)

Condition: [FOCUS OFF] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]

- The sled moves outside when pressing [FF] or [REW] keys.
- The function moves to Mode 1 when pressing [NEXT] key.

#### 3. Mode 1 (Display P 01)

Condition: [FOCUS ON] [SPINDLE OFF] [RADIAL OFF] [MUTE ON]

- The function moves to Mode 2 when pressing [NEXT] key.
- The function moves to Mode 0 when pressing [PREV] key.

#### 4. Mode 2 (Display P 02)

Condition: [FOCUS ON] [SPINDLE ON] [RADIAL OFF] [MUTE ON]

- The function moves to Mode 3 when pressing [NEXT] key.
- The function moves to Mode 0 when pressing [PREV] key.

#### 5. Mode 3 (Display P 03)

Condition: [FOCUS ON] [SPINDLE ON] [RADIAL ON] [MUTE OFF]

- The Sled moves outside when pressing [FF] key.
- The Sled moves inside when pressing [REW] key.
- The function moves to Mode 2 when pressing [PREV] key.

\* The following key operation can be available at all of the conditions of the service mode.

- All of FL display light by pressing [STOP/CUE] key.
- Model Number and Version Nbr of the  $\mu$ -processor are displayed by pressing [PAUSE] key.

Cd - ☐ - ☐  
 |                      |  
 Model Number       $\mu$ -Processor Version Nbr.  
 0=PMD320/PMD321

#### 3) The same as Normal operation (except Service mode) is performed by pressing [PLAY] key.

However if some default is detected, an error code is displayed. (For example: Err 10)

The content for each error code is shown below.

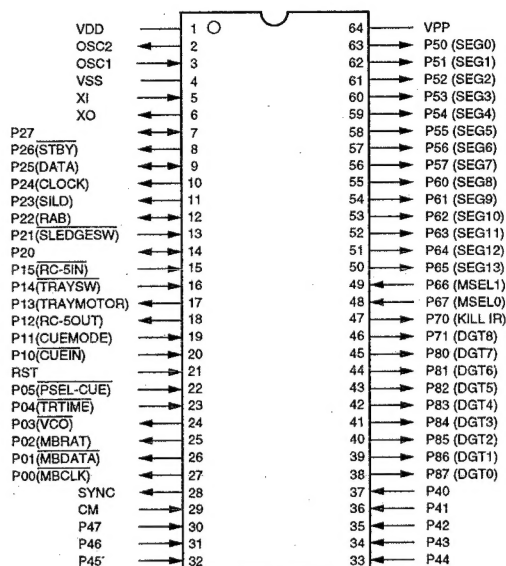
| Error Code  | Error           |
|-------------|-----------------|
| Err 02      | FOCUS Error     |
| Err 07      | SUB CODE Error  |
| Err 08      | T. O. C Error   |
| Err 09      | DECODER Error   |
| Err 10      | RADIAL Error    |
| Err 11, 12  | SLED Error      |
| Err 13      | SPINDLE Error   |
| Err 16 ~ 20 | SEARCH Error    |
| Err 30      | DOOR Error      |
| Err 31      | TRAY Error      |
| Err 32 ~ 47 | KEY INPUT Error |

#### 6. Cancelling the Service Mode

- The Service Mode is cancelled by turning the power off.

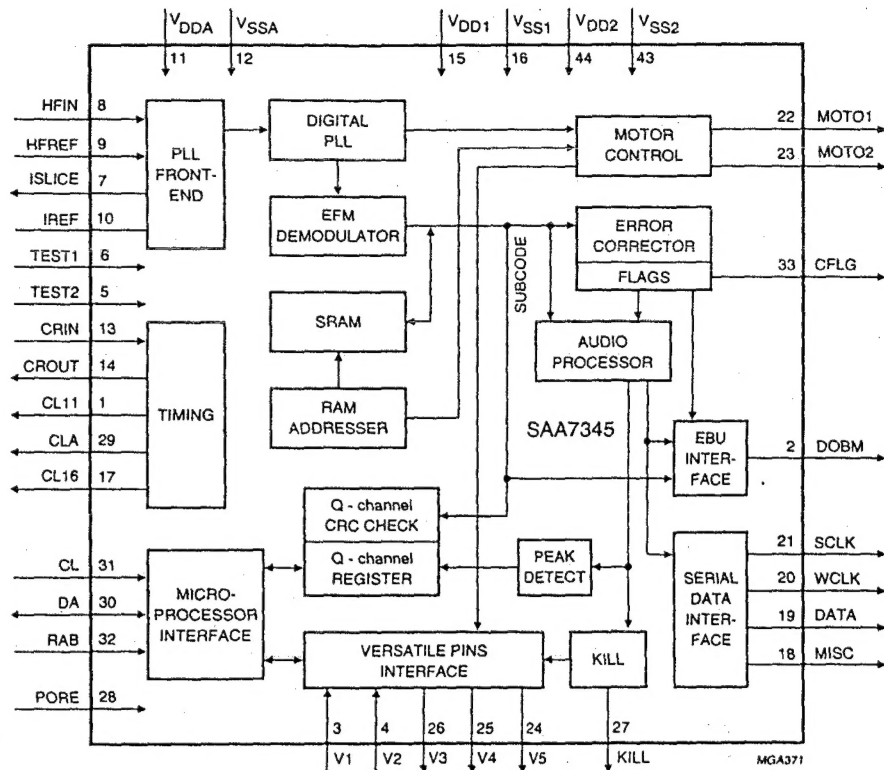
## 5. MICROPROCESSOR AND IC DATA

### MN187164 (MICROPROCESSOR)



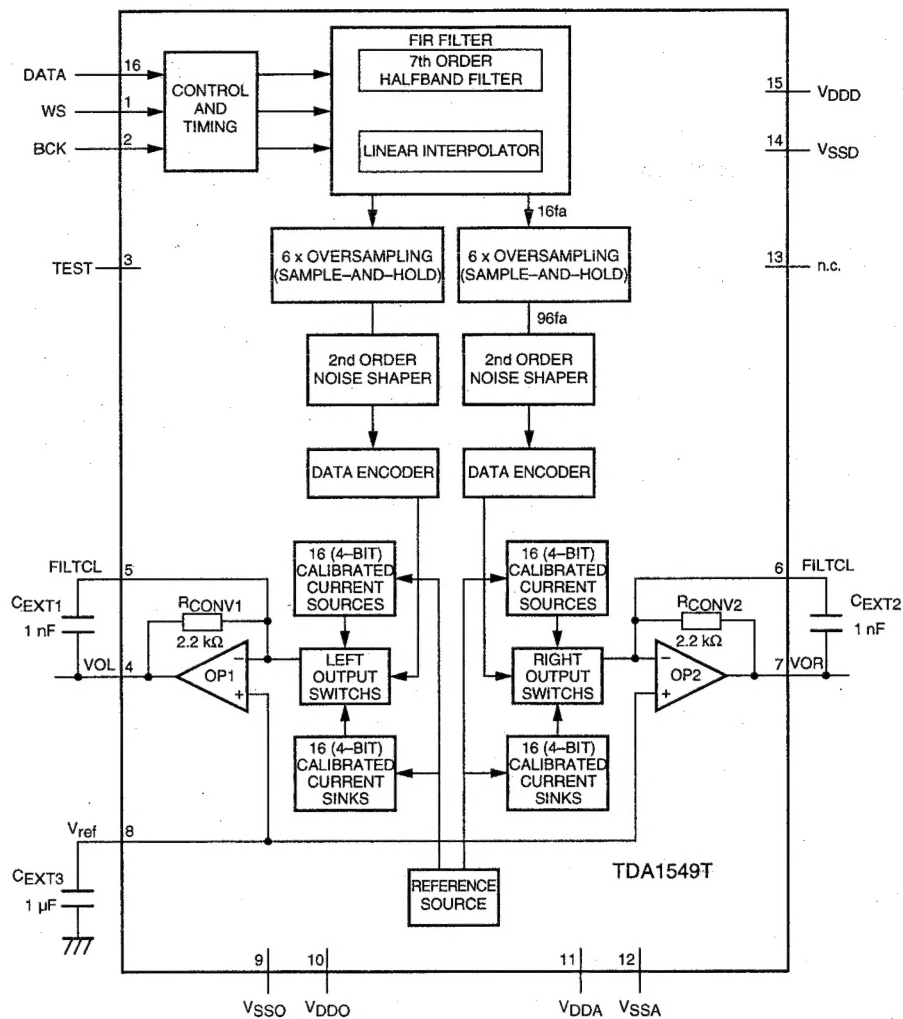
| Pin Nbr | Pin Name      | I/O | Function             | Pin Nbr | Pin Name    | I/O | Function                |
|---------|---------------|-----|----------------------|---------|-------------|-----|-------------------------|
| 1       | Vdd           | -   | Power Supply +5V     | 33      | P44         | I   | Key Input, KEY 5        |
| 2       | OSC2          | O   | Clock out (8.0MHz)   | 34      | P43         | I   | Key Input, KEY 4        |
| 3       | OSC1          | I   | Clock in (8.0MHz)    | 35      | P42         | I   | Key Input, KEY 3        |
| 4       | Vss           | -   | GND 0V               | 36      | P41         | I   | Key Input, KEY 2        |
| 5       | XI            | I   | 0V                   | 37      | P40         | I   | Key Input, KEY 1        |
| 6       | XO            | O   | Not Used             | 38      | P87 (DGT0)  | O   | FL Digit Data, G9       |
| 7       | P27           | I/O | Not Used             | 39      | P86 (DGT1)  | O   | FL Digit Data, G8       |
| 8       | P26 STBY      | O   | TDA1301 RESET, NRST  | 40      | P85 (DGT2)  | O   | FL Digit Data, G7       |
| 9       | P25 DATA      | I/O | Data Bus Data, SIDA  | 41      | P84 (DGT3)  | O   | FL Digit Data, G6       |
| 10      | P24 CLOCK     | O   | Data Bus Clock, SICK | 42      | P83 (DGT4)  | O   | FL Digit Data, G5       |
| 11      | P23 SILD      | O   | TDA1301 SILD (latch) | 43      | P82 (DGT5)  | O   | FL Digit Data, G4       |
| 12      | P22 RAB       | I/O | SAA7345 RAB          | 44      | P81 (DGT6)  | O   | FL Digit Data, G3       |
| 13      | P21 SLEDGESW  | I   | Sledge SW, SLSW      | 45      | P80 (DGT7)  | O   | FL Digit Data, G2       |
| 14      | P20 MUTE      | I/O | Not Used             | 46      | P71 (DGT8)  | O   | FL Digit Data, G1       |
| 15      | P15 RC5IN     | I   | RC-5 code Input      | 47      | P70 KILL IR | O   | Kill IR, N.C.           |
| 16      | P14 TRAYSW    | I   | Tray In/Out SW, TRSW | 48      | P67 MSEL0   | I   | Model Select SW 0       |
| 17      | P13 TRAYMOTOR | O   | Tray Motor           | 49      | P66 MSEL1   | I   | Model Select SW 1       |
| 18      | P12 RC5OUT    | O   | RC-5 code Output     | 50      | P65 (SEG13) | O   | FL Segment Data, P1     |
| 19      | P11 CUEMODE   | I   | CUE Mode Select      | 51      | P64 (SEG12) | O   | FL Segment Data, P2     |
| 20      | P10 CUEIN     | I   | Not Used             | 52      | P63 (SEG11) | O   | FL Segment Data, P3     |
| 21      | RST           | I   | RESET                | 53      | P62 (SEG10) | O   | FL Segment Data, P4     |
| 22      | P05 PSEL-CUE  | I   | Pause Select CUE     | 54      | P61 (SEG9)  | O   | FL Segment Data, P5     |
| 23      | P04 TRTIME    | I   | Tray Time            | 55      | P60 (SEG8)  | O   | FL Segment Data, P6     |
| 24      | P03 VCO       | O   | VCO Select           | 56      | P57 (SEG7)  | O   | FL Segment Data, P7     |
| 25      | P02 MBRAT     | O   | MB87014 RAT          | 57      | P56 (SEG6)  | O   | FL Segment Data, P8     |
| 26      | P01 MBDATA    | O   | MB87014 DATA         | 58      | P55 (SEG5)  | O   | FL Segment Data, P9     |
| 27      | P00 MBCLK     | O   | MB87014 CLK          | 59      | P54 (SEG4)  | O   | FL Segment Data, P10    |
| 28      | SYNC          | O   | Not Used             | 60      | P53 (SEG3)  | O   | FL Segment Data, P11    |
| 29      | CM            | I   | 0V                   | 61      | P52 (SEG2)  | O   | FL Segment Data, P12    |
| 30      | P47           | I   | Key Input, KEY 8     | 62      | P51 (SEG1)  | O   | FL Segment Data, P13    |
| 31      | P46           | I   | Key Input, KEY 7     | 63      | P50 (SEG0)  | O   | FL Segment Data, P14    |
| 32      | P45           | I   | Key Input, KEY 6     | 64      | Vpp         | -   | Power Supply -25V, VFTD |

# SAA7345GP/M5 (DIGITAL DECODING IC WITH RAM)

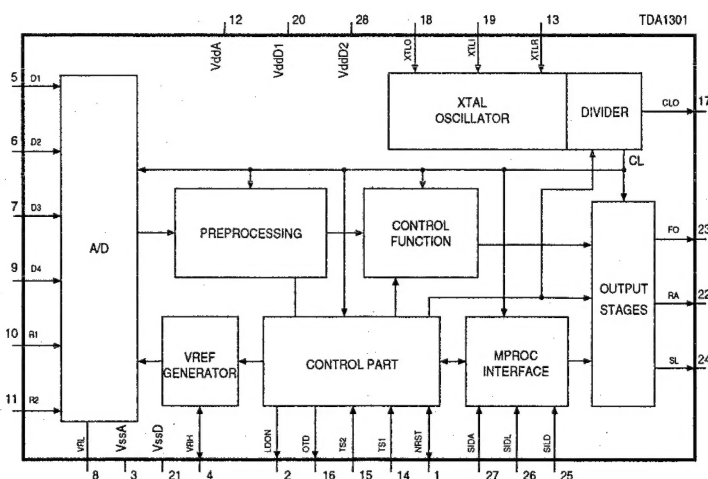


| Pin Nbr | Pin Name | I/O | Function  | Pin Nbr | Pin Name | I/O | Function                                 |
|---------|----------|-----|---|---------|----------|-----|--|
| 1       | CL11     | O   | 11.2896MHz clock output (3-state)                   | 23      | MOTO2    | O   | Motor output 2; versatile (3-state)      |
| 2       | DOBM     | O   | Bi-phase mark output (externally buffered; 3-state) | 24      | V5       | O   | Versatile output pin                     |
| 3       | V1       | I   | Versatile input pin                                 | 25      | V4       | O   | Versatile output pin                     |
| 4       | V2       | I   | Versatile input pin                                 | 26      | V3       | O   | Versatile output pin (open-drain)        |
| 5       | TEST2    | I   | Test input: this pin should be tied LOW             | 27      | KILL     | O   | Kill output; programmable (open-drain)   |
| 6       | TEST1    | I   | Test input; this pin should be tied LOW             | 28      | PORE     | I   | Power-on reset enable input (active LOW) |
| 7       | ISLICE   | O   | Current feedback from data slicer                   | 29      | CLA      | O   | 4.2336MHz microprocessor clock output    |
| 8       | HFIN     | I   | Comparator signal input                             | 30      | DA       | I/O | Interface data I/O line                  |
| 9       | HFREF    | I   | Comparator common-mode input                        | 31      | CL       | I   | Interface clock input line               |
| 10      | IREF     | -   | Reference current pin (nominally $V_{DD}/2$ )       | 32      | RAB      | I   | Interface R/W and acknowledge input      |
| 11      | VDDA     | -   | Power supply (Analogue)                             | 33      | CFLG     | O   | Correction flag output (open-drain)      |
| 12      | VSSA     | -   | GND (Analogue)                                      | 34      | —        | -   | No internal connection                   |
| 13      | CRIN     | I   | Crystal/resonator input, 16.9344 MHz                | 35      | —        | -   |  |
| 14      | CROUT    | O   | Crystal/resonator output                            | 36      | —        | -   |  |
| 15      | VDD1     | -   | Power supply 1 (Digital)                            | 37      | —        | -   |  |
| 16      | VSS1     | -   | GND 1 (Digital)                                     | 38      | —        | -   |  |
| 17      | CL16     | O   | 16.9344MHz system clock output                      | 39      | —        | -   |  |
| 18      | MISC     | O   | General purpose DAC output (3-state)                | 40      | —        | -   |  |
| 19      | DATA     | O   | Serial data output (3-state)                        | 41      | —        | -   |  |
| 20      | WCLK     | O   | Word clock output (3-state)                         | 42      | —        | -   |  |
| 21      | SCLK     | O   | Serial bit clock output (3-state)                   | 43      | VSS2     | -   | GND 2 (Digital)                          |
| 22      | MOTO1    | O   | Motor output 1; versatile (3-state)                 | 44      | VDD2     | -   | Power supply 2 (Digital)                 |

## TDA1549T/N1 (DAC)

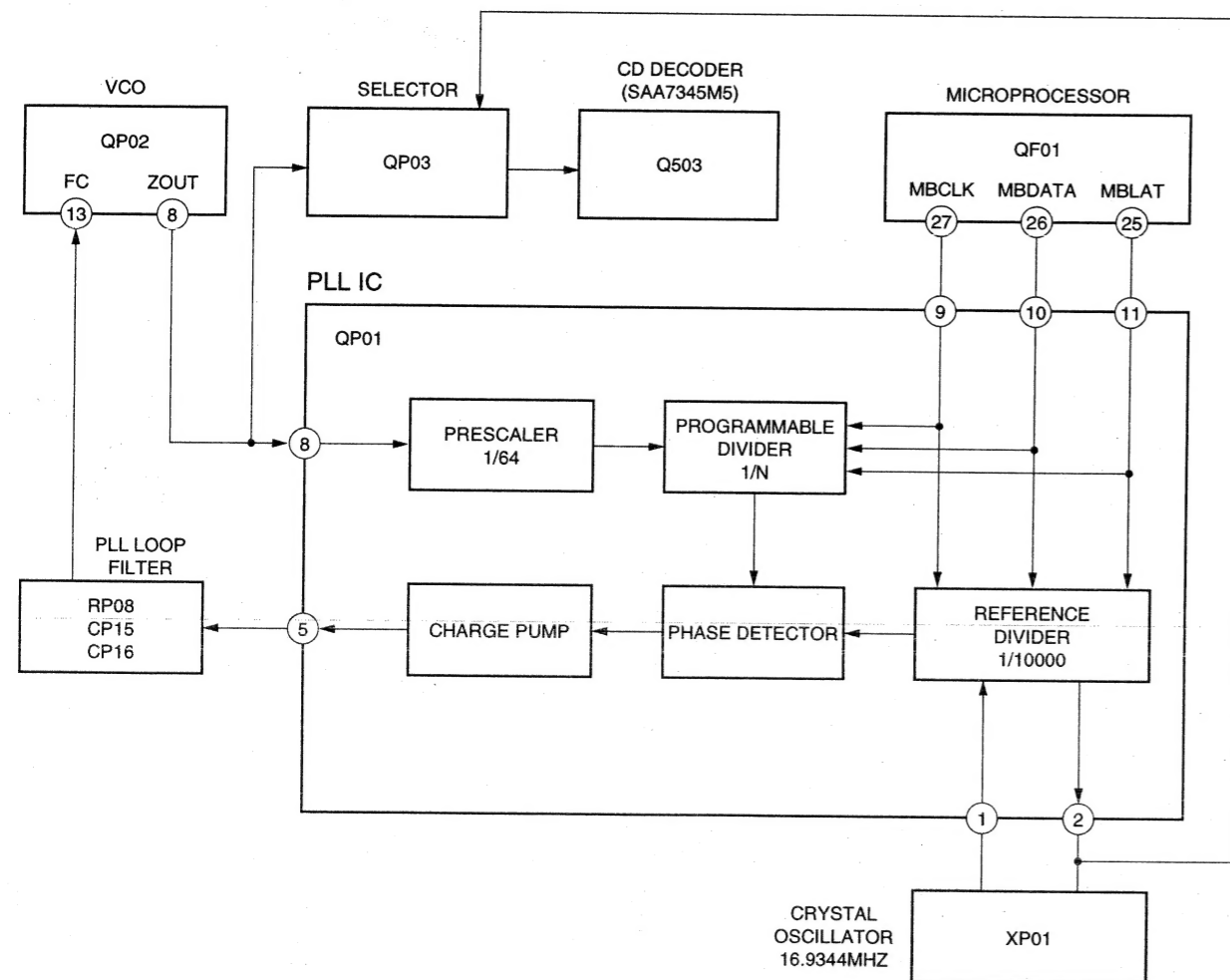


## TDA1301T (DIGITAL SERVO)



## 6. SERVICING HINTS (Pitch Control)

- The pitch of the PMD320 should be controlled by changing the clock frequency, which will be input to the CD Decoder Q503, with using PLL.
- PLL is composed of VCO QP02, Crystal Oscillator XP01, PLL IC QP01, PLL loop filter RP08, CP15 and CP16.
- At the beginning condition after switching ON, or when the 'CAL.' key is pressed, the clock data of the crystal oscillator will be input to the CD Decoder Q503 directly from Selector QP03.
- If either "PITCH +" key or "PITCH -" key is pressed, the clock data of VCO QP02 will be input to the CD Decoder Q503 directly from the Selector QP03.
- The PLL should be set into operation frequency by the microprocessor QF01 which located at pins 25, 26 and 27.



## Pitch Control

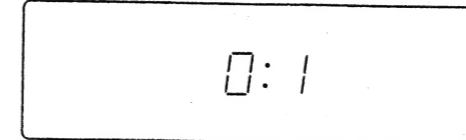
The CD playback speed and pitch can be varied by +/- 12%.

### Caution:

**When the CD playback speed is varied with the PMD320/PMD321 pitch control, the sample rate is varied and digital recording may not be possible.**

### Increasing up the CD playback speed.

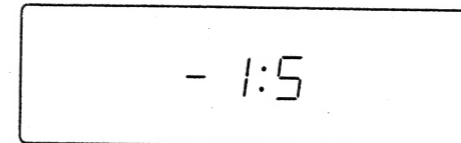
1. Press the **PITCH +** button. Display the current playback speed.  
(eg. the playback speed is +0.1%.)



2. Every time pressing the **PITCH +** button, the playback speed is 0.1% up.
3. After 1.5 seconds pressing the **PITCH +** button, the display returns to normal.

### Decreasing the CD playback speed.

1. Press the **PITCH -** button. Display the current playback speed.  
(eg. the playback speed is -1.5%.)



2. Every time pressing the **PITCH -** button, the playback speed is 0.1% down.
3. After 1.5 seconds pressing the **PITCH -** button, the display returns to normal.

### Returning to the normal speed

There are 2 ways to return the normal speed.

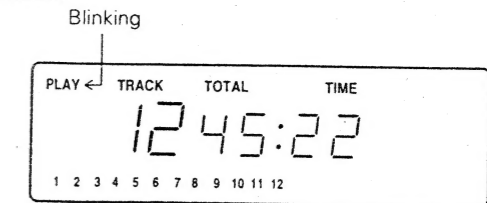
- a. Press the **CAL.** button.
  - b. Change the **PITCH +** or **PITCH -** button to set the playback speed to 0.0%.
- \* When the CD playback speed is varied (including the 0.0% speed), the indicator ":" on the display blinks. We recommend using the **CAL.** button to return to normal playback for higher clock accuracy.

Digital audio equipment, such as a D/A converter, digital sound processor, etc., may not lock to the digital output signal, when you connect the digital output terminal to the digital audio equipment and change the pitch. Press the **CAL.** button to set the pitch to 0.0%.

## AUDIO CUE (only PMD321)

This function skips the silent passage at the beginning of a track and start playback just before the audio begins. Press the **CUE** button.

The "PLAY" indicator will blink, indicating the AUDIO CUE mode.



You can now select a track with the PLAY and numeric (0-9) **◀** or **▶** buttons. The PMD321 will cue to the beginning of the audio of the selected track.

### Starting tracks

- Press the **PAUSE** button.

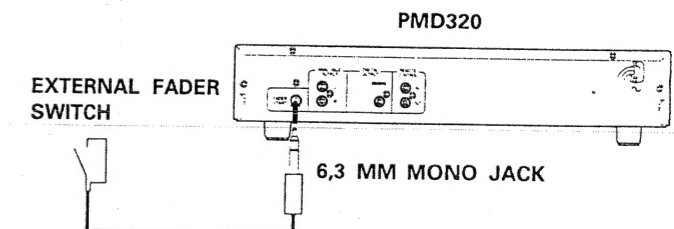
### Releasing the AUDIO CUE mode

- Press the **CUE** button.
- \* The sound detecting level is approx. -42.1 dB. Tracks which are not recorded over this level do not work correctly.
- \* The beginning of fade-in tracks may not be played back.

## FADER START REMOTE CONNECTION

The fader start connection will enable you to start and stop playback of a selected track by means of an external switch.

This can be the fader start switch, Built into a mixing desk.

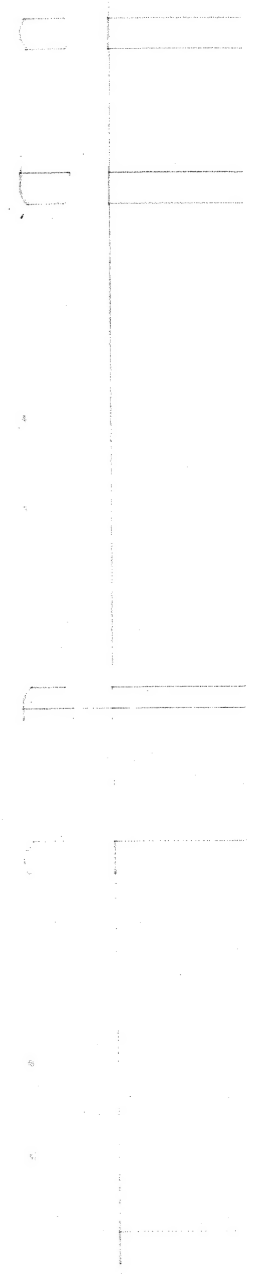
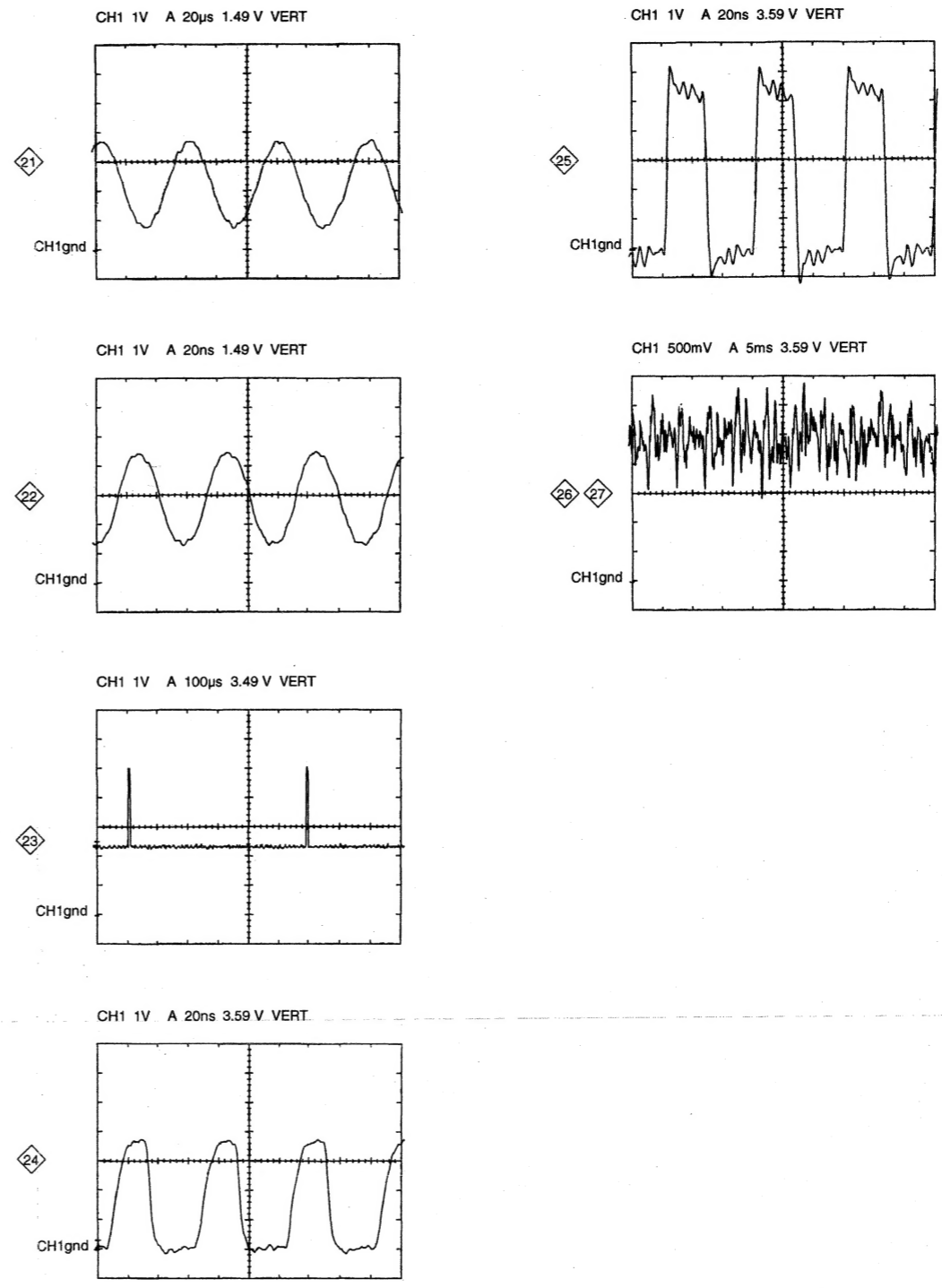
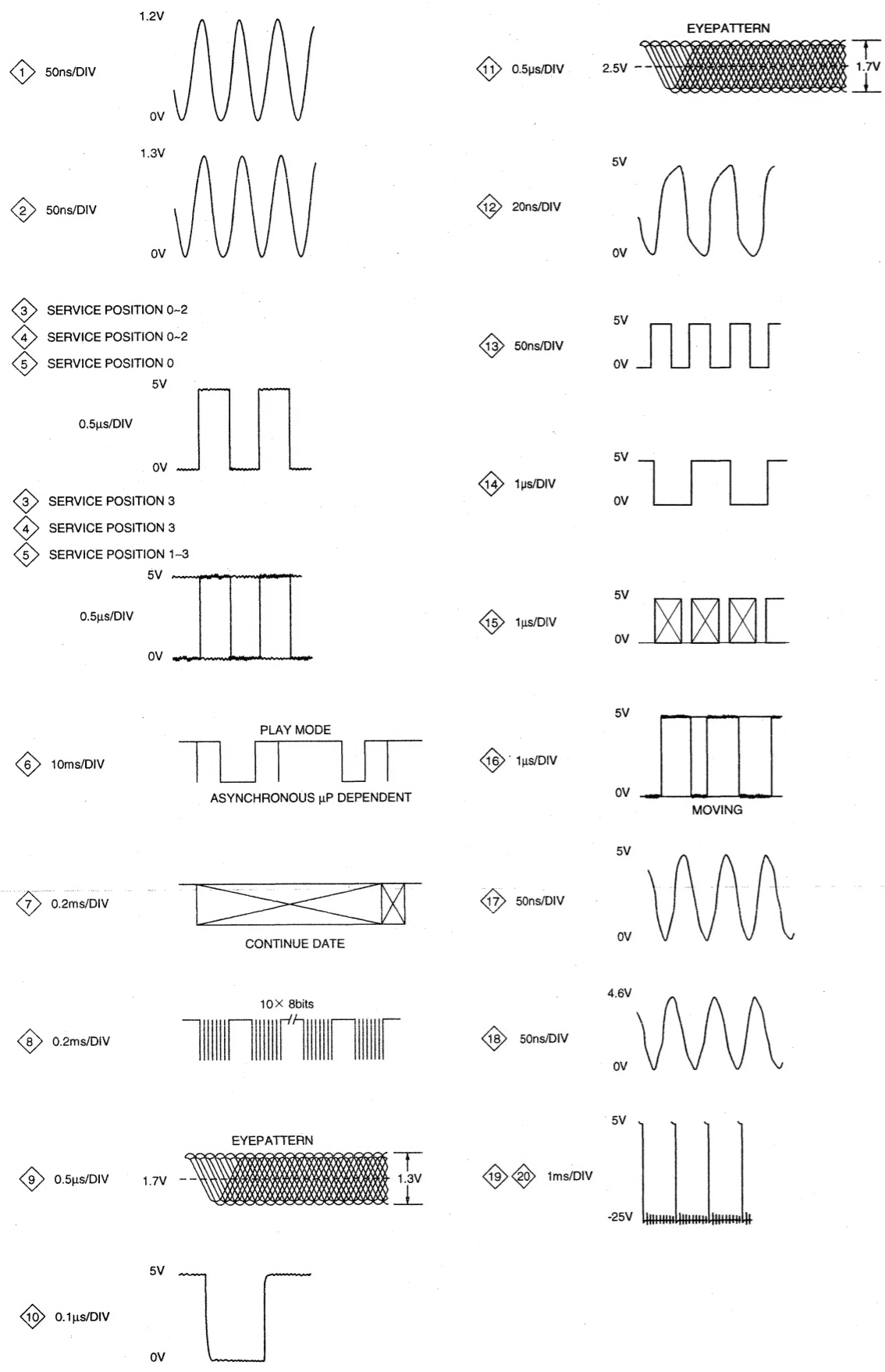


### OPERATION

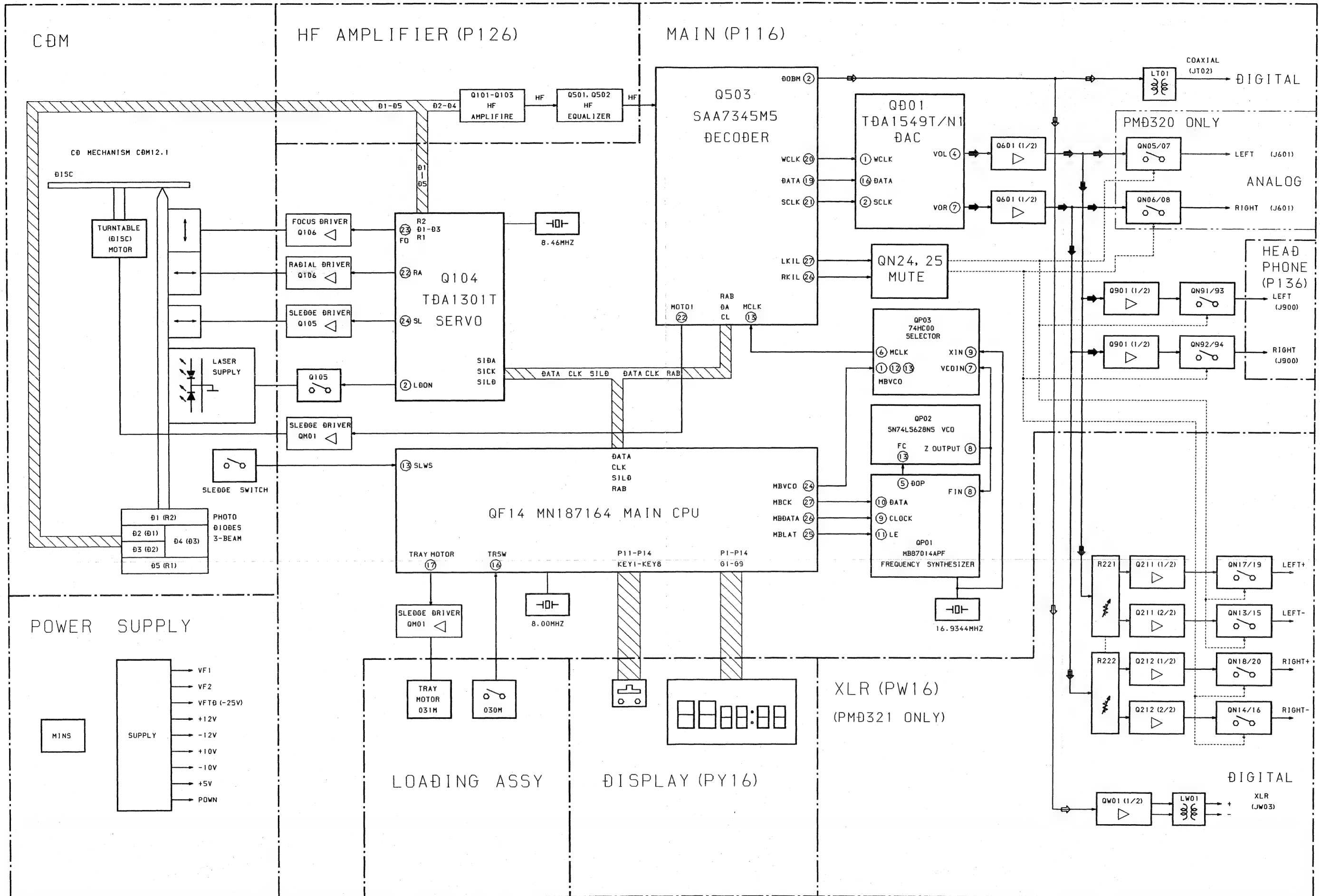
| MODE  | OPEN           | CLOSE       |
|-------|----------------|-------------|
| PLAY  | NO ACTION      | GO TO PAUSE |
| PAUSE | START PLAYBACK | NO ACTION   |

Playback is started when opening the fader switch. When the fader switch is closed, the CD-player goes to pause mode.

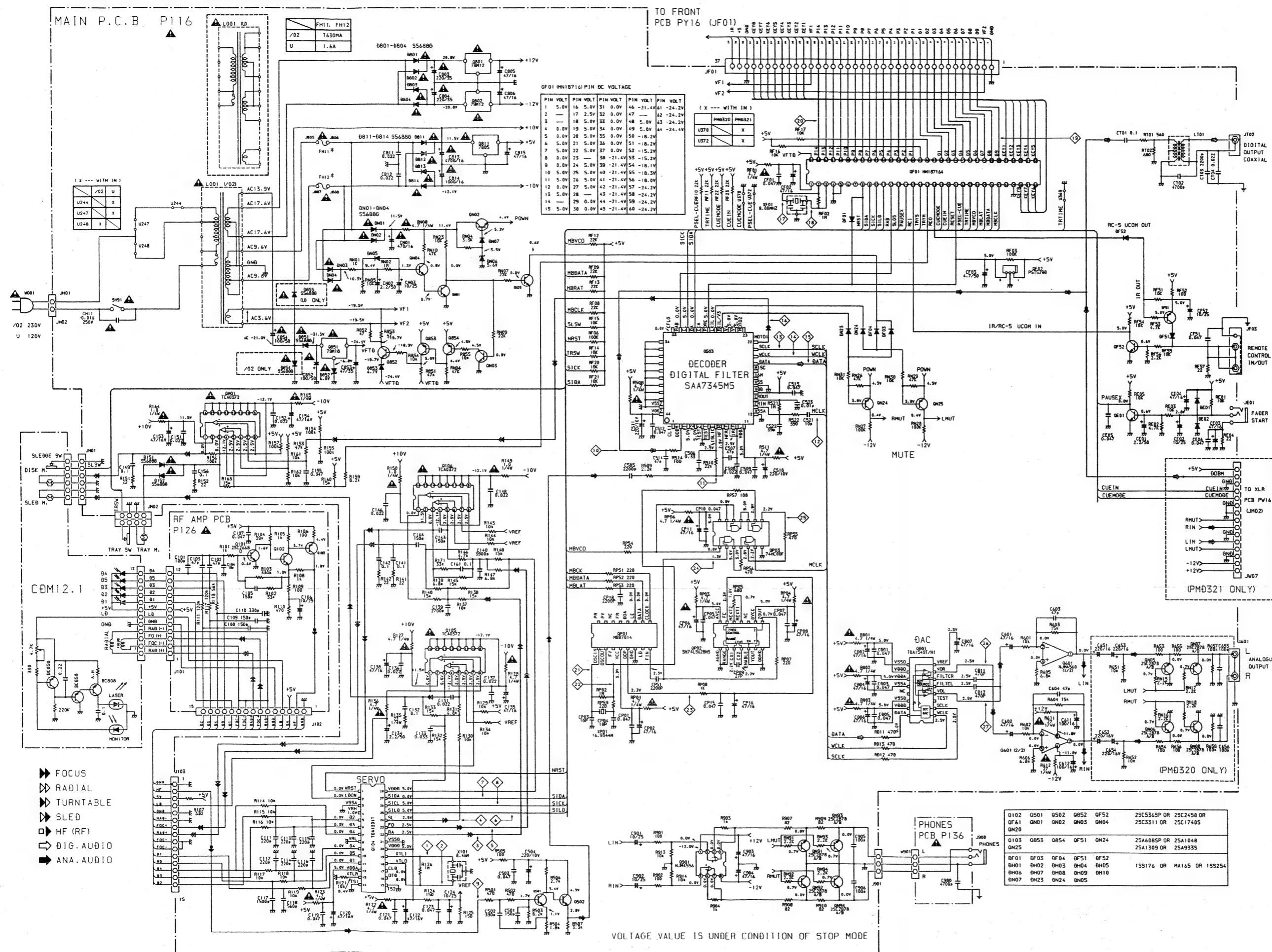
7. WAVE FORM



## 8. BLOCK DIAGRAM

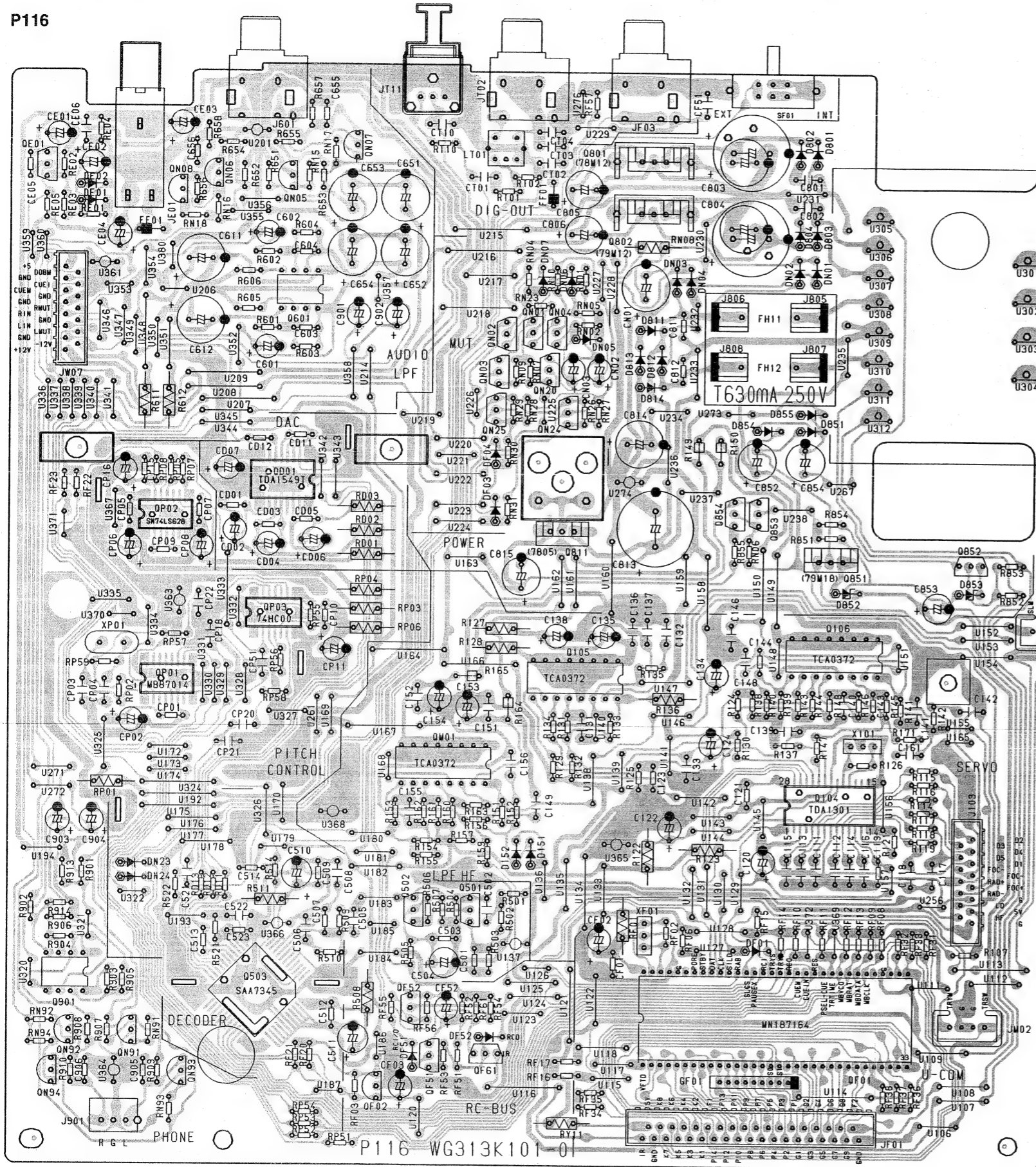


## 9. SCHEMATIC DIAGRAMS AND PARTS LOCATION (PATTERN SIDE)



QE01 QN08 QN06 QN05,Q601 QN07 QN01-QN04,QN25,QN20,QN24, Q801,Q802  
 QP01,QP02 QD01,QP03 QM01 Q811,Q105 Q854,Q853 Q106,Q851 Q852  
 QN94,Q901,QN92 QN91 QN93 Q503 QF02 QF52,Q502,QF51 Q501 QF61 QF01 Q104

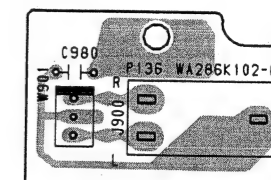
P116



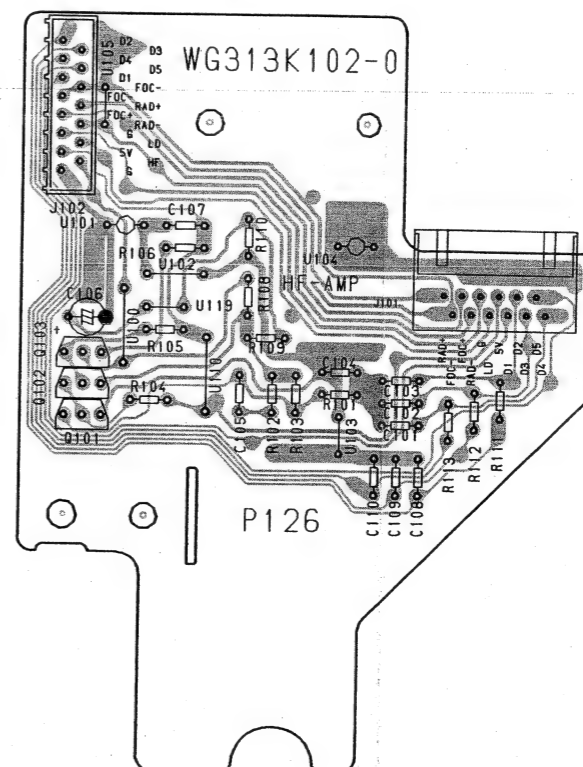
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE FUSE.

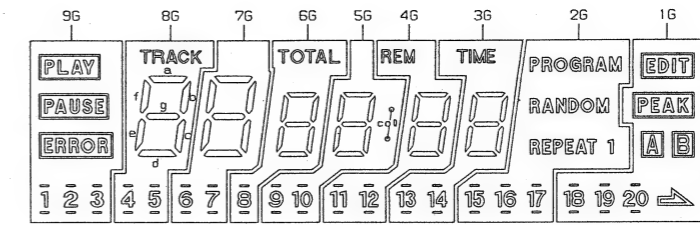
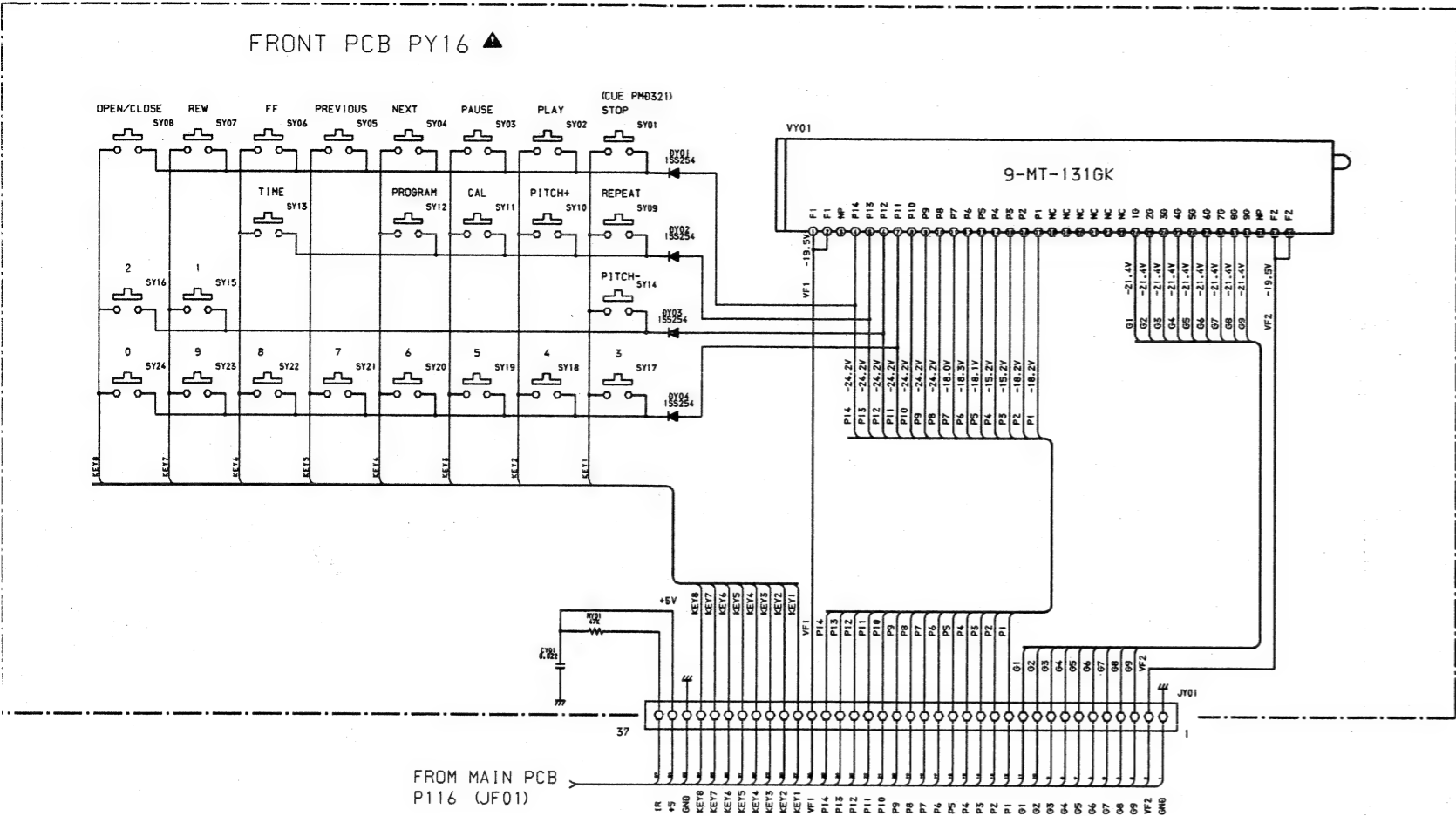
ATTENTION: AFIN D'ASSURER PERMANENTE UNE PROTECTION CONTRE LES RISQUES D'INCENDIE, REMPLACER UNIQUEMENT PAR UN FUSIBLE DE MEME TYPE FUSE.

P136



P126



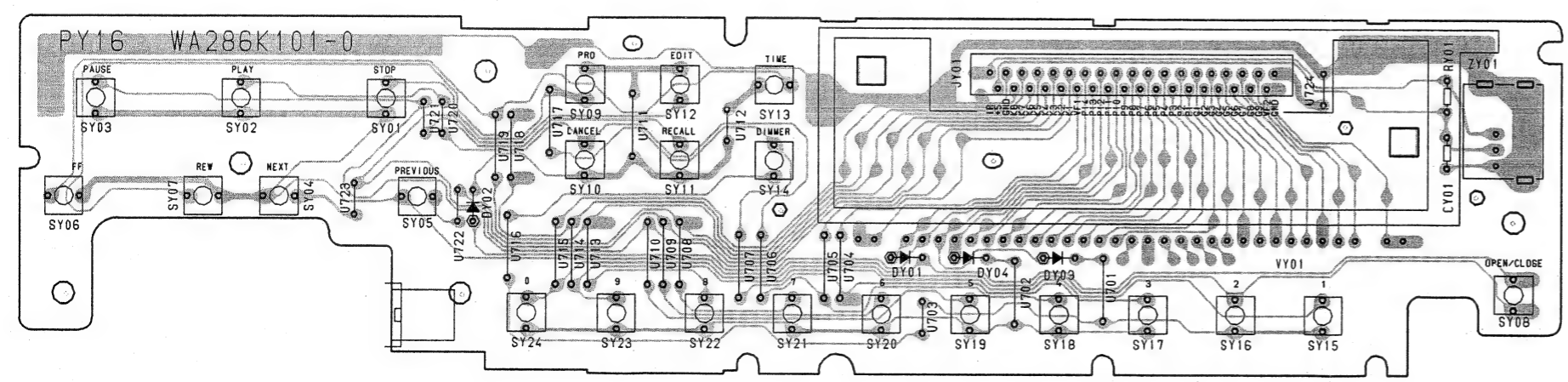


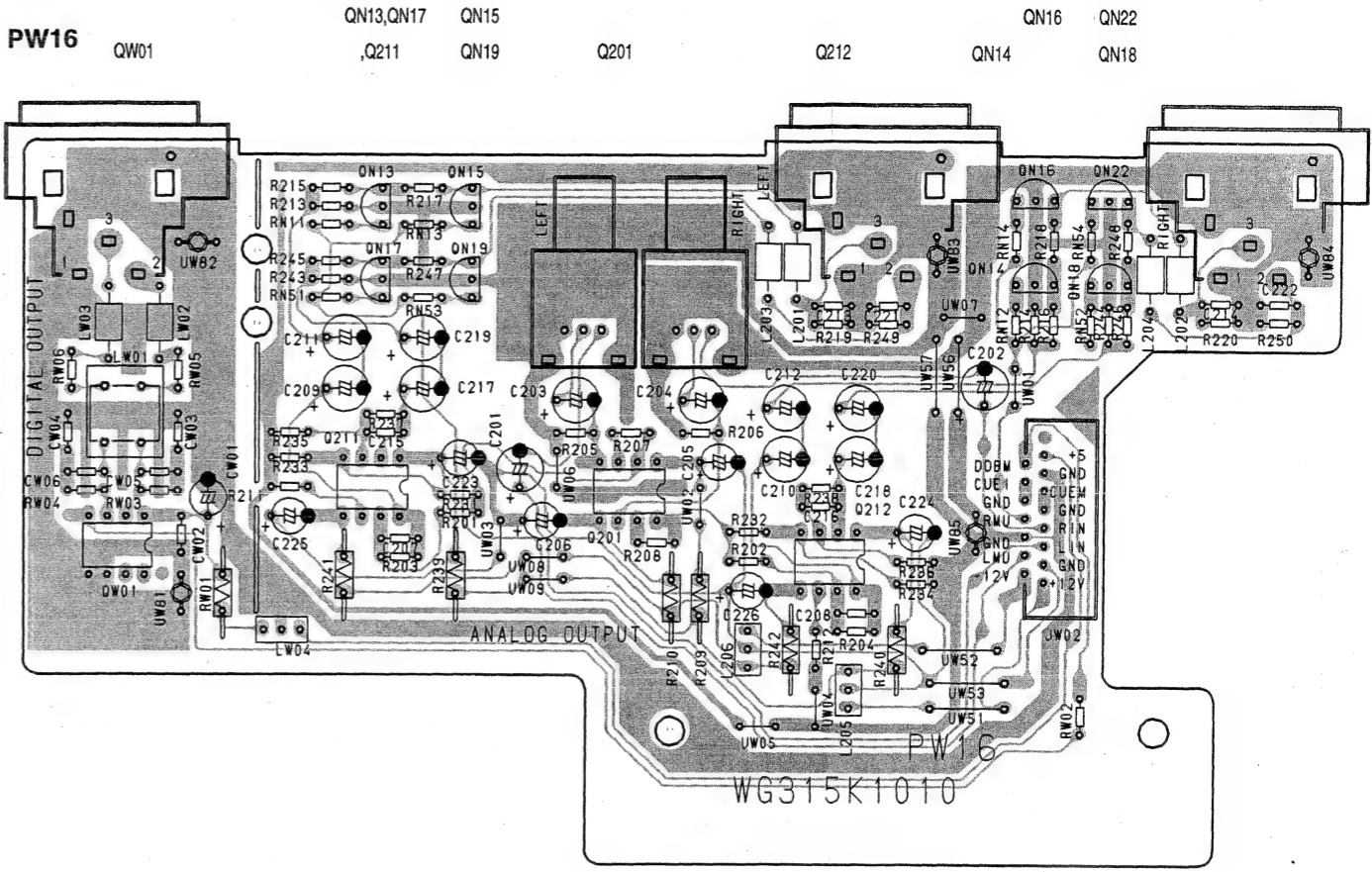
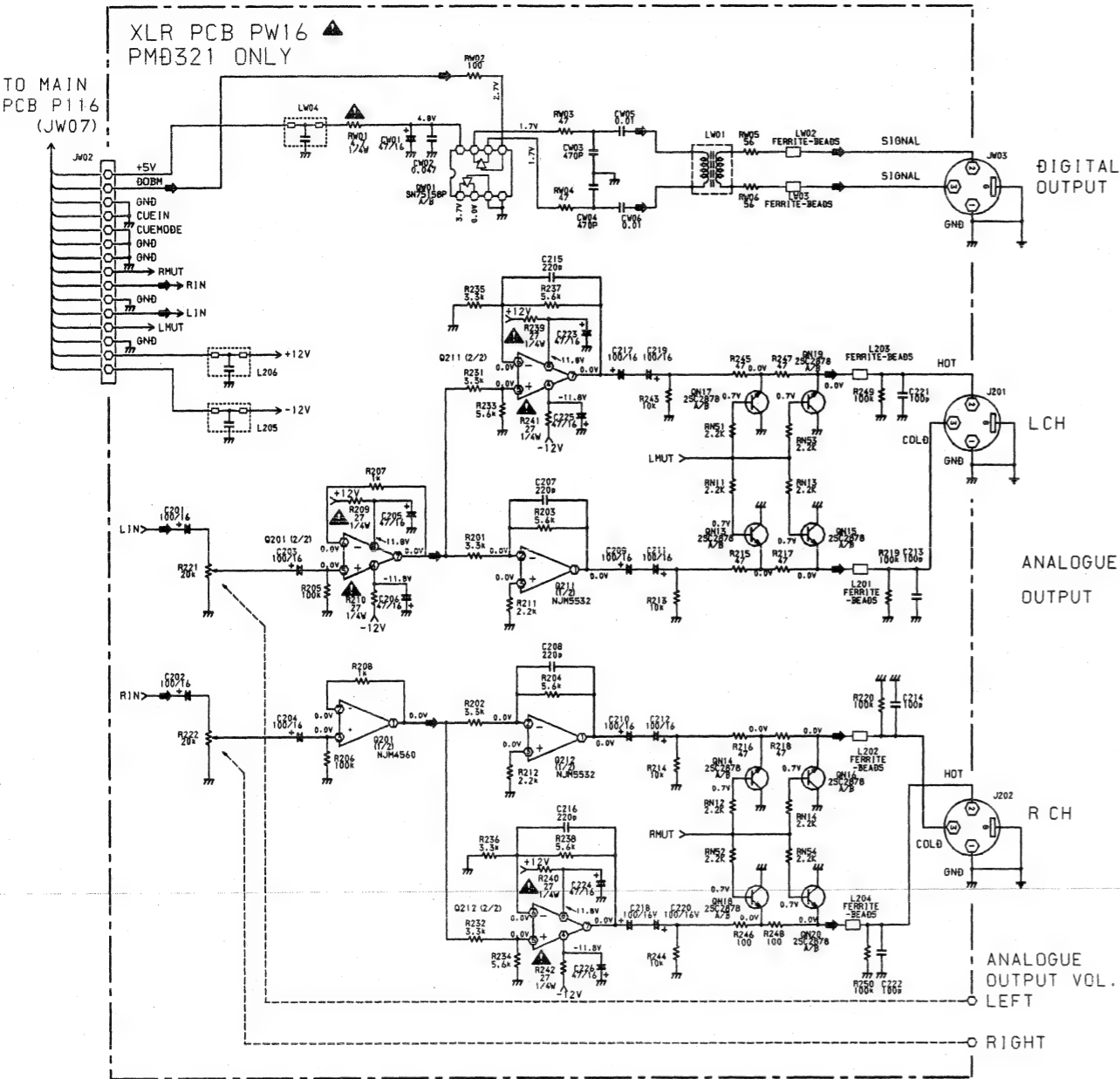
ANODE CONNECTION

|     | 9G    | 8G    | 7G  | 6G    | 5G   | 4G   | 3G   | 2G      | 1G   |
|-----|-------|-------|-----|-------|------|------|------|---------|------|
| P1  | -     | a     | a   | a     | a    | a    | a    | PROGRAM | PEAK |
| P2  | (1)   | b     | b   | b     | b    | b    | b    | 15      | 16   |
| P3  | 1     | c     | c   | c     | c    | c    | c    | (15)    | (16) |
| P4  | (1)   | d     | d   | d     | d    | d    | d    | 1       | ▲    |
| P5  | -     | e     | e   | e     | e    | e    | e    | REPEAT  | B    |
| P6  | ERROR | f     | f   | f     | f    | f    | f    | -       | A    |
| P7  | (2)   | g     | g   | g     | g    | g    | g    | (15)    | (16) |
| P8  | 2     | (4)   | -   | TOTAL | col  | REW  | (13) | 13      | 19   |
| P9  | (2)   | 4     | (6) | -     | (9)  | (11) | (13) | 13      | 19   |
| P10 | (3)   | (4)   | 6   | (8)   | 9    | 11   | (13) | (16)    | (19) |
| P11 | 3     | (5)   | (6) | 8     | (9)  | (11) | (14) | (17)    | (20) |
| P12 | (3)   | 5     | (7) | (8)   | (10) | (12) | 14   | 17      | 20   |
| P13 | PLAY  | (5)   | 7   | -     | 10   | 12   | (14) | (17)    | (20) |
| P14 | PAUSE | TRACK | (7) | -     | (10) | (12) | TIME | RANDOM  | EDIT |

9-MT-131GK  
ANODE CONNECTION

PY16





PCS 85 789

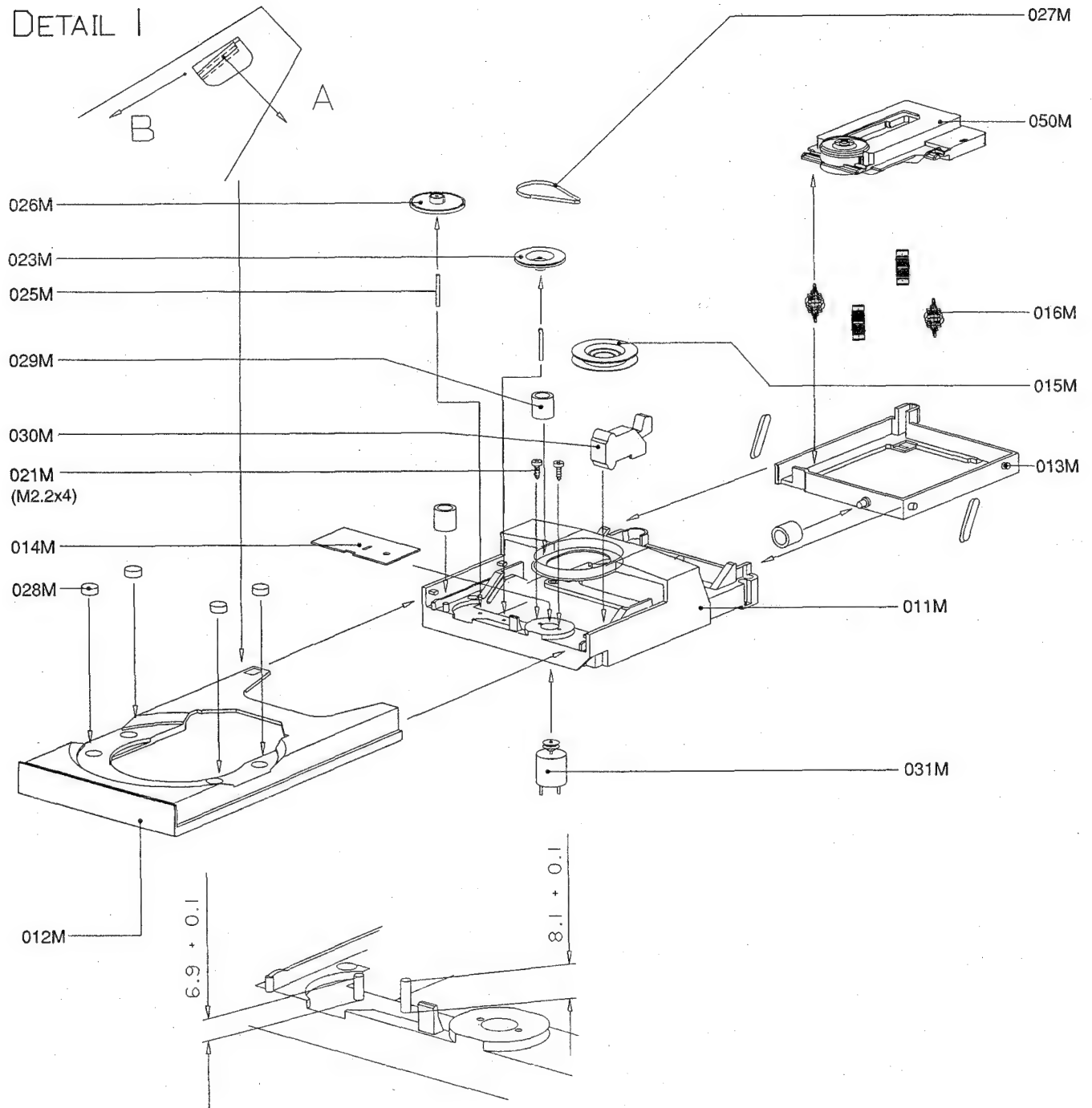


- 22 -

| [ VERS.:VERSION, U:U.S.A, F:Japan, K:Far East, /XX:Europe ] |                |                            |  |                               |
|---|----------------|----------------------------|--|-------------------------------|
| POS.<br>NO.   | VERS.<br>COLOR | PART NO.<br>( For EUROPE ) | DESCRIPTION                                | PART NO.<br>( For U / K / F ) |
| 002B  | /02            |                            | CHASSIS, FRONT PL                          | 285K105210                    |
| 002B  | U              |                            | CHASSIS, FRONT PL                          | 285K105020                    |
| 003B  |                |                            | FRONT PANEL, AL [PMD320]                   | 313K248010                    |
| 003B  |                |                            | FRONT PANEL, AL [PMD321]                   | 315K248010                    |
| 005B  |                | 4822 410 62898             | BUTTON, D3 GOLD HOT STAMPED                | 285K270020                    |
| 006B  | U              |                            | BUTTON, OPEN/CLOSE                         | 285K270030                    |
| 006B  | /02            |                            | BUTTON, OPEN/CLOSE                         | 285K270230                    |
| 007B  |                |                            | WINDOW [PMD320]                            | 313K158010                    |
| 045B  |                | 4822 410 62744             | BUTTON, POWER                              | 285K270010                    |
| 050B  |                | 4822 454 30491             | ESCUTCHEON, DISC TRAY FRONT                | 285K063010                    |
| 060B  |                |                            | BRACKET, RACK MOUNT                        | 313K160010                    |
| 061B  |                |                            | H.S. HEAD BOLT                             | 52730408U0                    |
| 062B  |                | 4822 532 11287             | WASHER                                     | 59046502G0                    |
| 001D  |                |                            | LID, TOP COVER                             | 285K257010                    |
| 009G  |                | 4822 462 41771             | LEG (BLACK MOLD)                           | 229K057010                    |
| 025G  |                | 4822 403 70989             | LINK, POWER SW.                            | 285K121010                    |
| 911G  |                | 4822 532 60948             | BUSHING, AC CORD BUSH                      | 450H259010                    |
| ▲W001   | U              |                            | A.C.POWER CORD                             | YC01800330                    |
| ▲W001   | /02            | 4822 321 10428             | A.C.POWER CORD                             | YC01800340                    |
| W102  |                | 4822 321 63052             | JUMPER LEAD SUMI CARD<br>15P 60MM [PMD321] | YU15060520                    |
| WY01  | /02            |                            | JUMPER LEAD SUMI CARD<br>37P 120MM         | YU37120500                    |
| WY01  | U              |                            | JUMPER LEAD SUMI CARD<br>37P 120MM         | YU37120520                    |
| 001T  | U              |                            | <b>PACKING</b><br>USER MANUAL [PMD320/321] | 313K851250                    |
| 001T  | /02            |                            | USER MANUAL [PMD320/321]                   | 313K851310                    |
| J081  |                | 4822 321 21438             | CONNECTIVE CORD, RCA [PMD320]              | ZD01000330                    |

# LOADER

## DETAIL I



[VERS.:VERSION, U:U.S.A, F:Japan, K:Far East, /XX:Europe]

| POS.<br>NO. | VERS.<br>COLOR | PART NO.<br>( For EUROPE ) | DESCRIPTION              | PART NO.<br>( For U/K/F ) |
|-------------|----------------|----------------------------|--------------------------|---------------------------|
| 011M        |                | 4822 444 50678             | CHASSIS                  | 271K105030                |
| 012M        |                | 4822 444 50679             | TRAY, SLIDE              | 271K163010                |
| 013M        |                | 4822 464 50895             | SUBCHASSIS               | 271K105040                |
| 015M        |                | 4822 402 61412             | CLAMPER ASSY             | 271K005010                |
| 016M        |                | 4822 325 50215             | BUFFER, SUSPENSION       | 271K056010                |
| 021M        |                | 4822 502 12001             | SCREW                    | 271K010010                |
| 023M        |                | 4822 528 81465             | PULLEY                   | 271K262010                |
| 026M        |                | 4822 528 81464             | GEAR, DRIVE PINION       | 271K058010                |
| 027M        |                | 4822 358 31168             | BELT, DRIVE              | 271K264010                |
| 028M        |                | 4822 325 80511             | BUFFER, ORNAMENTAL TULE  | 271K056030                |
| 029M        |                | 4822 325 60379             | BUFFER, DAMPING GROMMET  | 271K056020                |
| 030M        |                | 4822 276 13222             | MINI SW, SINMEI QAS12299 | *SM000300R                |
| 031M        |                | 4822 361 21492             | D.C.MOTOR                | *MM000660R                |
| 050M        |                | 4822 691 30278             | MECHANISM, CDM12.1       | 271K304560                |

## 11. ELECTRICAL PARTS LIST

### ASSIGNMENT OF COMMON PARTS CODES.

#### RESISTOR

**R\*\*\*** : (1) GD05 x x x 140, Carbon film fixed resistor,  $\pm 5\%$  1/4W  
**R\*\*\*** : (2) GD05 x x x 160, Carbon film fixed resistor,  $\pm 5\%$  1/6W

① ——— Resistance value

Examples ;

① Resistance value

|                       |                       |                         |                         |
|-----------------------|-----------------------|-------------------------|-------------------------|
| 0.1 $\Omega$ .....001 | 10 $\Omega$ .....100  | 1 k $\Omega$ .....102   | 100 k $\Omega$ .....104 |
| 0.5 $\Omega$ .....005 | 18 $\Omega$ .....180  | 2.7 k $\Omega$ .....272 | 680 k $\Omega$ .....684 |
| 1 $\Omega$ .....010   | 100 $\Omega$ .....101 | 10 k $\Omega$ .....103  | 1 M $\Omega$ .....105   |
| 6.8 $\Omega$ .....068 | 390 $\Omega$ .....391 | 22 k $\Omega$ .....223  | 4.7 M $\Omega$ .....475 |

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

#### C\*\*\* : CERAMIC CAP.

(1) DD1 x x x 370, Ceramic capacitor  
 Disc type  
 Temp. coeff. P350 ~ N1000, 50V

① ——— Capacity value  
 ② ——— Tolerance

Examples ;

① Tolerance (Capacity deviation)

|                             |
|-----------------------------|
| $\pm 0.25\text{pF}$ ..... 0 |
| $\pm 0.5\text{pF}$ ..... 1  |
| $\pm 5\%$ ..... 5           |

\*Tolerance of COMMON PARTS handled here are as follows :

|                                       |
|---------------------------------------|
| 0.5pF ~ 5pF ..... $\pm 0.25\text{pF}$ |
| 6pF ~ 10pF ..... $\pm 0.5\text{pF}$   |
| 12pF ~ 560pF ..... $\pm 5\%$          |

② Capacity value

|                 |                |                 |
|-----------------|----------------|-----------------|
| 0.5 pF .....005 | 3 pF .....030  | 100 pF .....101 |
| 1 pF .....010   | 10 pF .....100 | 220 pF .....221 |
| 1.5 pF .....015 | 47 pF .....470 | 560 pF .....561 |

#### C\*\*\* : CERAMIC CAP.

(1) DK16 x x x 300, High dielectric constant ceramic capacitor  
 Disc type  
 Temp. chara. 2B4, 50V

① ——— Capacity value

Examples ;

① Capacity value

|                 |                  |                   |
|-----------------|------------------|-------------------|
| 100 pF .....101 | 1000 pF .....102 | 10000 pF .....103 |
| 470 pF .....471 | 2200 pF .....222 |                   |

#### C\*\*\* : ELECTROLY. CAP. ( $\neq$ ), FILM CAP. ( $\pm$ )

(1) EA x x x x x 10, Electrolytic capacitor  
 One-way lead type, Tolerance  $\pm 20\%$

① ——— Working voltage  
 ② ——— Capacity value

Examples ;

① Capacity value

|                             |                            |                             |
|-----------------------------|----------------------------|-----------------------------|
| 0.1 $\mu\text{F}$ .....104  | 4.7 $\mu\text{F}$ .....475 | 100 $\mu\text{F}$ .....107  |
| 0.33 $\mu\text{F}$ .....334 | 10 $\mu\text{F}$ .....106  | 330 $\mu\text{F}$ .....337  |
| 1 $\mu\text{F}$ .....105    | 22 $\mu\text{F}$ .....226  | 1100 $\mu\text{F}$ .....118 |
|                             |                            | 2200 $\mu\text{F}$ .....228 |

② Working voltage

|                |               |
|----------------|---------------|
| 6.3 V .....006 | 25 V .....025 |
| 10 V .....010  | 35 V .....035 |
| 16 V .....016  | 50 V .....050 |

(2) DF15 x x x 350 ——— Plastic film capacitor  
 DF15 x x x 310 ——— One-way type, Mylar  $\pm 5\%$  50V  
 DF16 x x x 310 ——— Plastic film capacitor  
 One-way type, Mylar  $\pm 10\%$  50V

① ——— Capacity value

Examples ;

① Capacity value

|                                       |                             |
|---------------------------------------|-----------------------------|
| 0.001 $\mu\text{F}$ (1000pF) .....102 | 0.1 $\mu\text{F}$ .....104  |
| 0.0018 $\mu\text{F}$ .....182         | 0.56 $\mu\text{F}$ .....564 |
| 0.01 $\mu\text{F}$ .....103           | 1 $\mu\text{F}$ .....105    |
| 0.015 $\mu\text{F}$ .....153          |                             |

**NOTE** : 1) The above CODES (**R\*\*\***, **R\*\*\***, **C\*\*\***, **C\*\*\*** and **C\*\*\***) are omitted on the schematic diagram in some case.  
 2) On the occasion, be confirmed common parts on the parts list.  
 3) Refer to "Common Parts List" for the other common parts (**R105**, **DD4**, **DK4**).

### NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors aer as follows

#### 1. KOA Corporation

| Part No.       | Type No.                   | Description        |
|----------------|----------------------------|--------------------|
| NH05 x x x 140 | RF25S x x x x $\Omega$ J   | ( $\pm 5\%$ 1/4W)  |
| NH05 x x x 120 | RF50S x x x x $\Omega$ J   | ( $\pm 5\%$ 1/2W)  |
| NH85 x x x 110 | RF73B2A x x x x $\Omega$ J | ( $\pm 5\%$ 1/10W) |
| NH85 x x x 140 | RF73B2E x x x x $\Omega$ J | ( $\pm 5\%$ 1/4W)  |

\* Resistance value      \* Resistance value  
 (0.1 - 10k $\Omega$ )

#### 2. Matsushita Electronic Components Co., Ltd

| Part No.       | Type No.       | Description       |
|----------------|----------------|-------------------|
| NF05 x x x 140 | ERD-2FCJ x x x | ( $\pm 5\%$ 1/4W) |
| RF05 x x x 140 |                |                   |
| NF02 x x x 140 | ERD-2FCG x x x | ( $\pm 2\%$ 1/4W) |
| RF02 x x x 140 |                |                   |

\* Resistance value      \* Resistance value

Examples :

|                       |                       |                         |                         |
|-----------------------|-----------------------|-------------------------|-------------------------|
| 0.1 $\Omega$ .....001 | 10 $\Omega$ .....100  | 1 k $\Omega$ .....102   | 100 k $\Omega$ .....104 |
| 0.5 $\Omega$ .....005 | 18 $\Omega$ .....180  | 2.7 k $\Omega$ .....272 | 680 k $\Omega$ .....684 |
| 1 $\Omega$ .....010   | 100 $\Omega$ .....101 | 10 k $\Omega$ .....103  | 1 M $\Omega$ .....105   |
| 6.8 $\Omega$ .....068 | 390 $\Omega$ .....391 | 22 k $\Omega$ .....223  | 4.7 M $\Omega$ .....475 |

### ABBREVIATION AND MARKS

|    |                             |    |                       |
|----|-----------------------------|----|-----------------------|
| 1  | ANT. : ANTENNA              | 2  | BATT. : BATTERY       |
| 3  | CAP. : CAPACITOR            | 4  | CER. : CERAMIC        |
| 5  | CONN. : CONNECTING          | 6  | DIG. : DIGITAL        |
| 7  | HP : HEADPHONE              | 8  | MIC. : MICROPHONE     |
| 9  | $\mu$ -PRO : MICROPROCESSOR | 10 | REC. : RECORDING      |
| 11 | RES. : RESISTOR             | 12 | SPK : SPEAKER         |
| 13 | SW : SWITCH                 | 14 | TRANSF. : TRANSFORMER |
| 15 | TRIM. : TRIMMING            | 16 | TRS. : TRANSISTOR     |
| 17 | VAR. : VARIABLE             | 18 | X'TAL : CRYSTAL       |
| 19 |                             | 20 |                       |
| 21 |                             | 22 |                       |
| 23 |                             | 24 |                       |
| 25 |                             | 26 |                       |
| 27 |                             | 28 |                       |
| 29 |                             | 30 |                       |

### NOTE ON SAFETY :

Symbol  $\blacktriangle$  Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol  $\blacktriangle$ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

### 安全上の注意 :

$\blacktriangle$  がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

| POS.<br>NO. | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION  | PART NO.<br>(For U/K/F) | POS.<br>NO. | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION   | PART NO.<br>(For U/K/F) |
|-------------|----------------|--------------------------|--|-------------------------|-------------|----------------|--------------------------|---|-------------------------|
|             |                |                          | <b>PW16-XLR CIRCUIT BOARD<br/>[PMD321 ONLY]</b>  |                         |             |                |                          | <b>PY16-FRONT CIRCUIT BOARD</b>                       |                         |
| CW01        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V RA-2  | OA47601620              | CY01        |                |                          | <b>PY16-CAPACITOR</b>                                 | DA17473110              |
| CW02        |                |                          | CER. 0.047 $\mu$ F +80%-20%  | DA17473110              |             |                |                          | <b>PY16-RESISTOR (COMMON)</b>                         |                         |
| CW03        |                |                          | CER. 470 PF $\pm$ 10%  | DA16471110              | R***        |                |                          | CARBON FILM FIXED RESISTOR,<br>$\pm$ 5% 1/6W:<br>PY01 |                         |
| CW04        |                |                          | CER. 470 PF $\pm$ 10%  | DA16471110              |             |                |                          | <b>PY16-SEMICONDUCTORS</b>                            |                         |
| CW05        |                |                          | CER. 0.01 $\mu$ F $\pm$ 20%  | DA17103110              | DY01        |                |                          |   |                         |
| CW06        |                |                          | CER. 0.01 $\mu$ F $\pm$ 20%  | DA17103110              | S           |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254<br>30V 0.1A              | HD20002000              |
| C201        |                | 4822 124 90354           | ELECT 100 $\mu$ F 16V RA-2   | OA10701620              | DY04        |                |                          |   |                         |
| S           |                |                          |  |                         |             |                |                          | <b>PY16-MISCELLANEOUS</b>                             |                         |
| C204        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V RA-2  | OA47601620              | JY01        |                |                          | JACK, 37 PIN FFC (L-TYPE)                             | YJ06011470              |
| C205        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V RA-2  | OA47601620              | SY01        |                |                          |   |                         |
| C206        |                |                          | CER. 270 PF $\pm$ 10%  | DA16221110              | S           |                | 4822 276 20508           | PUSH SW, TACT SW                                      | SP01011280              |
| C207        |                |                          | CER. 270 PF $\pm$ 10%  | DA16221110              | SY14        |                |                          |   |                         |
| C208        |                |                          |  |                         | SY15        |                | 4822 276 13296           | PUSH SW, TACT SW (100GF)                              | SP01011880              |
| C209        |                | 4822 124 90354           | ELECT 100 $\mu$ F 16V RA-2   | OA10701620              | S           |                |                          |   |                         |
| S           |                |                          |  |                         | SY24        |                |                          |   |                         |
| C212        |                |                          |  |                         | VY01        |                | 4822 130 91287           | DISPLAY UNIT, 9MT131GK FTD                            | HQ3091441               |
| C213        |                |                          | CER. 100 PF $\pm$ 10%  | DA16101110              |             |                |                          | <b>P116-MAIN CIRCUIT BOARD</b>                        |                         |
| C214        |                |                          | CER. 100 PF $\pm$ 10%  | DA16101110              |             |                |                          | <b>P116-CAPACITORS</b>                                |                         |
| C215        |                |                          | CER. 270 PF $\pm$ 10%  | DA16221110              | CD01        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| C216        |                |                          | CER. 270 PF $\pm$ 10%  | DA16221110              | CD02        |                | 4822 124 41539           | ELECT 47 $\mu$ F 10V                                  | OA47601620              |
| C217        |                | 4822 124 90354           | ELECT 100 $\mu$ F 16V RA-2   | OA10701620              | CD03        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| S           |                |                          |  |                         | CD04        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| C220        |                |                          |  |                         | CD05        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| C221        |                |                          | CER. 100 PF $\pm$ 10%  | DA16101110              | CD06        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| C222        |                |                          | CER. 100 PF $\pm$ 10%  | DA16101110              | CD07        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| C223        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V RA-2  | OA47601620              | CD11        |                |                          | FILM 470 PF $\pm$ 5% 50V                              | DF15471350              |
| S           |                |                          |  |                         | CD12        |                |                          | FILM 470 PF $\pm$ 5% 50V                              | DF15471350              |
| C226        |                |                          |  |                         | CE01        |                | 4822 124 90357           | ELECT 2.2 $\mu$ F 50V                                 | OA22505020              |
|             |                |                          |  |                         | CE02        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V                                  | OA10602520              |
| ▲RW01       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W  | NF05047140              | CE03        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| ▲R209       |                | 4822 052 10279           | FUSE 27 $\Omega$ $\pm$ 2% 1/4W   | NF02270140              | CE04        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| ▲R210       |                | 4822 052 10279           | FUSE 27 $\Omega$ $\pm$ 2% 1/4W   | NF02270140              | CE05        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| R221        |                | 4822 101 30882           | VARIABLE RESIST RK09L1120 20K $\Omega$   | RB02030350              | CE06        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| R222        |                | 4822 101 30882           | VARIABLE RESIST RK09L1120 20K $\Omega$   | RB02030350              | CF01        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| ▲R239       |                | 4822 111 31049           | FUSE 27 $\Omega$ $\pm$ 2% 1/4W   | NF02270140              | CF02        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| S           |                |                          |  |                         | CF03        |                | 4822 124 22274           | ELECT 4.7 $\mu$ F 50V                                 | OA47505020              |
| ▲R242       |                |                          |  |                         | CF51        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
|             |                |                          |  |                         | CF52        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V                                  | OA10602520              |
|             |                |                          |  |                         | ▲CH11       |                |                          | FILM 0.01 $\mu$ F $\pm$ 20% 250V                      | DF77103500              |
|             |                |                          | <b>PW16-RESISTOR (COMMON)</b>  |                         | ▲CN01       |                | 4822 124 22277           | ELECT 470 $\mu$ F 16V                                 | OA47701620              |
|             |                |                          | CARBON FILM FIXED RESISTOR,<br>$\pm$ 5% 1/6W:<br>RN11-RN14, RN51-RN54, RW02-RW06,<br>R201-R208, R211-R220, R231-R238,<br>R243-R250 |                         | CN02        |                | 4822 124 90357           | ELECT 2.2 $\mu$ F 50V                                 | OA22505020              |
|             |                |                          |  |                         | CN03        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V                                  | OA10602520              |
|             |                |                          | <b>PW16-SEMICONDUCTORS</b>   |                         | CP01        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| QN13        |                | 4822 130 43818           | TRS. 2SC2878 (A OR BRANK)  | HT328782A0              | CP02        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| S           |                |                          |  |                         | CP03        |                |                          | CER. 10 PF $\pm$ 0.5PF                                | DD11100300              |
| QN19        |                | 4822 130 43818           | TRS. 2SC2878 (A OR BRANK)  | HT328782A0              | CP04        |                |                          | CER. 10 PF $\pm$ 0.5PF                                | DD11100300              |
| QN22        |                | 5322 209 60473           | IC, SN75158/P  | HC10071370              | CP05        |                | 4822 124 41539           | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| QW01        |                |                          |  |                         | CP06        |                |                          | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| Q201        |                | 4822 209 83274           | IC, NJM4560D   | HC10007090              | CP07        |                | 4822 124 41539           | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| Q211        |                | 4822 209 83662           | IC, NJM5532D   | HC10023090              | CP08        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| Q212        |                | 4822 209 83662           | IC, NJM5532D   | HC10023090              | CP09        |                |                          | CER. 27 PF $\pm$ 5%                                   | DA15270110              |
|             |                |                          |  |                         | CP10        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| JW02        |                | 4822 265 41528           | JACK, ZC-115 15P   | YJ07009730              | CP11        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| JW03        |                | 4822 267 31946           | PLUG, CANNON YKF52-5003  | YP10003340              | CP15        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| J201        |                | 4822 267 31946           | PLUG, CANNON YKF52-5003 (L-CH)   | YP10003340              | CP16        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| J202        |                | 4822 267 31946           | PLUG, CANNON YKF52-5003 (R-CH)   | YP10003340              | CT02        |                |                          | CER. 4700 PF +80%-20%                                 | DK18472310              |
| LW01        |                | 4822 148 81381           | PULSE TRANSF. TC-1086-26   | TP33842010              | CT04        |                |                          | CER. 0.022 $\mu$ F +80%-20%                           | DK18223310              |
| LW02        |                | 4822 158 60605           | FERRITE CORE, BEADS (B-01-RT)  | FC90050060              | C111        |                |                          |   |                         |
| LW03        |                | 4822 158 60605           | FERRITE CORE, BEADS (B-01-RT)  | FC90050060              | S           |                |                          | CER. 220 PF $\pm$ 5%                                  | DD15221300              |
| LW04        |                | 4822 242 73843           | EMI FILTER, DSS306-91-F-223Z   | FM12223010              | C116        |                |                          |   |                         |
| L201        |                | 4822 158 60605           | FERRITE CORE, BEADS (B-01-RT)  | FC90050060              | C119        |                |                          | CER. 0.047 $\mu$ F +80%-20%                           | DA17473110              |
| S           |                |                          |  |                         | C120        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V                                  | OA47601620              |
| L204        |                |                          |  |                         |             |                |                          |   |                         |
| L205        |                | 4822 242 73843           | DSS306-91-F-223Z   | FM12223010              |             |                |                          |   |                         |
| L206        |                | 4822 242 73843           | DSS306-91-F-223Z   | FM12223010              |             |                |                          |   |                         |

| POS.<br>NO. | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION                        | PART NO.<br>(For U/K/F) | POS.<br>NO. | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION                        | PART NO.<br>(For U/K/F) |
|-------------|----------------|--------------------------|------------------------------------|-------------------------|-------------|----------------|--------------------------|------------------------------------|-------------------------|
| C121        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              | C***        |                |                          | PLASTIC FILM CAPACITOR             |                         |
| C122        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | ONE WAY TYPE, MYLAR $\pm$ 5% 50V   |                         |
| C123        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              |             |                |                          | CT101, C131-C133, C139-C142, C149, |                         |
| C124        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V               | OA10602520              |             |                |                          | C155, C156, C161, C506             |                         |
| C134        |                | 4822 124 90357           | ELECT 2.2 $\mu$ F 50V              | OA22505020              |             |                |                          | <b>P116-RESISTORS</b>              |                         |
| C135        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | ▲RD01       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C136        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | S           |                |                          |                                    |                         |
| C137        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | ▲RD03       |                |                          |                                    |                         |
| C138        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | ▲RF01       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C143        |                |                          | CER. 150 PF $\pm$ 10%              | DA16151110              | ▲RN08       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C144        |                |                          | CER. 150 PF $\pm$ 10%              | DA16151110              | ▲RP01       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C146        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | ▲RP03       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C148        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | ▲RP04       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C151        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | ▲RP06       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C152        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              |             |                |                          |                                    |                         |
| C153        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | ▲R122       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C154        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | ▲R123       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C501        |                |                          | CER. 150 PF $\pm$ 10%              | DA16151110              | ▲R127       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C503        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              | ▲R128       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C504        |                | 4822 124 90363           | ELECT 220 $\mu$ F 10V              | OA22701020              | ▲R136       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C507        |                |                          | CER. 47 PF $\pm$ 5%                | DA15470110              | ▲R149       |                | 4822 116 60307           | FUSE 1 $\Omega$ $\pm$ 5% 1/4W      | NH05010140              |
| C508        |                |                          | CER. 0.022 $\mu$ F +80%-20%        | DK18223310              | ▲R150       |                | 4822 116 60307           | FUSE 1 $\Omega$ $\pm$ 5% 1/4W      | NH05010140              |
| C509        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              | ▲R164       |                | 4822 116 60307           | FUSE 1 $\Omega$ $\pm$ 5% 1/4W      | NH05010140              |
| C510        |                | 4822 124 90363           | ELECT 220 $\mu$ F 10V              | OA22701020              | ▲R165       |                | 4822 116 60307           | FUSE 1 $\Omega$ $\pm$ 5% 1/4W      | NH05010140              |
| C511        |                | 4822 124 90363           | ELECT 220 $\mu$ F 10V              | OA22701020              | ▲R508       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C512        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              |             |                |                          |                                    |                         |
| C513        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              | ▲R511       |                | 4822 111 90967           | FUSE 4.7 $\Omega$ $\pm$ 5% 1/4W    | NF05047140              |
| C514        |                |                          | CER. 47 PF $\pm$ 5%                | DA15470110              | ▲R611       |                | 4822 052 10279           | FUSE 27 $\Omega$ $\pm$ 2% 1/4W     | NF02270140              |
| C521        |                |                          | CER. 10 PF $\pm$ 5%                | DD11100300              | ▲R612       |                | 4822 052 10279           | FUSE 27 $\Omega$ $\pm$ 2% 1/4W     | NF02270140              |
| C522        |                |                          | CER. 39 PF $\pm$ 5% [PMD320]       | DD15390300              |             |                |                          |                                    |                         |
| C522        |                |                          | CER. 10 PF $\pm$ 5% [PMD321]       | DD11100300              |             |                |                          | <b>P116-RESISTORS (COMMON)</b>     |                         |
| C523        |                |                          | CER. 0.01 $\mu$ F +80%-20%         | DA17103110              |             |                |                          | CARBON FILM FIXED RESISTOR,        |                         |
| C601        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | $\pm$ 5% 1/6W:                     |                         |
| C602        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | RD11-RD13, RE01-RE05, RF02, RF03,  |                         |
| C603        |                |                          | CER. 47 PF $\pm$ 5%                | DA15470110              |             |                |                          | RF06, RF08-RF17, RF20-RF23,        |                         |
| C604        |                |                          | CER. 47 PF $\pm$ 5%                | DA15470110              |             |                |                          | RF51-RF57, RN01, RN02, RN04-RN07,  |                         |
| C611        |                | 4822 124 90354           | ELECT 100 $\mu$ F 16V              | OA10701620              |             |                |                          | RN09, RN10, RN15-RN18 [PMD320],    |                         |
| C612        |                | 4822 124 90354           | ELECT 100 $\mu$ F 16V              | OA10701620              |             |                |                          | RN23, RN26-RN31, RN91-RN94,        |                         |
| C651        |                | 4822 124 90364           | ELECT 220 $\mu$ F 16V [PMD320]     | OA22701620              |             |                |                          | RP02, RP05, RP07, RP08, RP51-RP57, |                         |
| C652        |                | 4822 124 90364           | ELECT 220 $\mu$ F 16V [PMD320]     | OA22701620              |             |                |                          | RP59, RT01, RT02, R107, R114-R119, |                         |
| C653        |                | 4822 124 90364           | ELECT 220 $\mu$ F 16V [PMD320]     | OA22701620              |             |                |                          | R121, R124-R126, R129-R135,        |                         |
| C654        |                | 4822 124 90364           | ELECT 220 $\mu$ F 16V [PMD320]     | OA22701620              |             |                |                          | R137-R148, R510, R514, R151-R163,  |                         |
| C655        |                |                          | CER. 100 PF $\pm$ 10% [PMD320]     | DA16101110              |             |                |                          | R171, R501-R507, R509, R521, R522, |                         |
| C656        |                |                          | CER. 100 PF $\pm$ 10% [PMD320]     | DA16101110              |             |                |                          | R601-R606, R651-R658 [PMD320],     |                         |
| ▲C803       |                | 4822 124 41538           | ELECT 220 $\mu$ F 35V              | OA22703520              |             |                |                          | R851-R855, R901-R904, R907-R919,   |                         |
| ▲C804       |                | 4822 124 41538           | ELECT 220 $\mu$ F 35V              | OA22703520              |             |                |                          | R913, R914                         |                         |
| C805        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | <b>P116-SEMICONDUCTORS</b>         |                         |
| C806        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | DE01        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C811        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              |             |                |                          | 30V 0.1A                           |                         |
| C812        |                |                          | CER. 0.047 $\mu$ F +80%-20%        | DA17473110              | DE02        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| ▲C813       |                | 4822 124 80582           | ELECT 4700 $\mu$ F 16V             | OA47801620              |             |                |                          | 30V 0.1A                           |                         |
| ▲C814       |                | 4822 124 22722           | ELECT 1000 $\mu$ F 16V             | OA10801620              | DF01        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C815        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | 30V 0.1A                           |                         |
| ▲C852       |                | 4822 124 90355           | ELECT 100 $\mu$ F 50V              | OA10705020              | DF03        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C853        |                |                          | ELECT 47 $\mu$ F 35V               | OA47603520              |             |                |                          | 30V 0.1A                           |                         |
| C854        |                | 4822 124 90355           | ELECT 100 $\mu$ F 50V              | OA10705020              | DF04        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C901        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V               | OA10602520              |             |                |                          | 30V 0.1A                           |                         |
| C902        |                | 4822 124 41534           | ELECT 10 $\mu$ F 25V               | OA10602520              | DF51        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C903        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              |             |                |                          | 30V 0.1A                           |                         |
| C904        |                | 4822 124 41539           | ELECT 47 $\mu$ F 16V               | OA47601620              | DF52        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
| C905        |                |                          | CER. 100 PF $\pm$ 10%              | DA16101110              |             |                |                          | 30V 0.1A                           |                         |
| C906        |                |                          | CER. 100 PF $\pm$ 10%              | DA16101110              | ▲DN01       |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A       | HD20029050              |
|             |                |                          | <b>P116-CAPACITORS (COMMON)</b>    |                         | ▲DN04       |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
|             |                |                          | CER. CAPACITOR                     |                         | DN05        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
|             |                |                          | DISC TYPE,                         |                         | DN06        |                | 4822 130 33948           | ZENER DIODE, 5.6V MTZJ5.6B         | HD30561000              |
|             |                |                          | TEMP. COEFF. P350-N1000, 50V:      |                         | DN07        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
|             |                |                          | C502                               |                         |             |                |                          | 30V 0.1A                           |                         |
|             |                |                          | HIGH DIELECTRIC CONSTANT           |                         | DN23        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
|             |                |                          | CER. CAPACITOR                     |                         | DN24        |                | 4822 130 32362           | DIODE, 1SS176, MA165, 1SS254       | HD20002000              |
|             |                |                          | DISC TYPE, TEMP CHARA. 2B4 50V:    |                         |             |                |                          | 30V 0.1A                           |                         |
|             |                |                          | CP18, CP51, CT03, C117, C118, C505 |                         | D151        |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A       | HD20029050              |
|             |                |                          |                                    |                         | D152        |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A       | HD20029050              |

| POS.<br>NO.   | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION                                  | PART NO.<br>(For U/K/F) |
|---------------|----------------|--------------------------|--|-------------------------|
| ▲D801<br>S    |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| ▲D804<br>S    |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| ▲D814<br>S    |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| ▲D851<br>D853 |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| ▲D852<br>D853 |                | 4822 130 33759           | ZENER DIODE, 6.8V MTZJ6.8C                   | HD30681000              |
| ▲D854<br>D855 |                | 4822 130 33759           | ZENER DIODE, 4.7V MTZJ4.7B                   | HD30471000              |
| ▲D854<br>U    | /02            | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| ▲D855<br>U    |                | 4822 130 80839           | DIODE, S5688G VRM=400V IO=1A                 | HD20029050              |
| QD01          |                | 4822 209 33252           | IC, DAC TDA1549/N1                           | HC10130490              |
| QE01          |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| QF01          |                |                          | MAIN CPU MN187164                            | HU313KA000              |
| QF02          |                | 4822 209 73951           | IC, RESET IC PST523D                         | HC10010550              |
| QF51          |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933   | HT10001000              |
| QF52          |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| QM01          |                | 4822 209 72587           | IC, DUAL POWER OP AMP TCA0372                | HC10034170              |
| QN01<br>S     |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| QN04<br>S     |                | 4822 130 43818           | TRS. 2SC2878 (A OR BRANK)<br>[PMD320]        | HT328782A0              |
| QN08<br>S     |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| QN20<br>S     |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S  | HT10001000              |
| QN24<br>S     |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S  | HT10001000              |
| QN25<br>S     |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S  | HT10001000              |
| QN91<br>S     |                | 4822 130 43818           | TRS. 2SC2878 (A OR BRANK)                    | HT328782A0              |
| QN94<br>S     |                | 4822 130 43818           | TRS. 2SC2878 (A OR BRANK)                    | HT328782A0              |
| QP01          |                |                          | IC, PF-G-BND MB87014A -TF                    | HC10103180              |
| QP02          |                |                          | IC, SN74LS628NS                              | HC762837Z0              |
| QP03          |                | 4822 209 30426           | IC, 74HC00                                   | HC700000Z0              |
| Q104          |                | 4822 209 32763           | IC, DIG. SERVO TDA1301T                      | HC10106490              |
| Q105          |                | 4822 209 72587           | IC, DUAL POWER OP AMP CA0372                 | HC10034170              |
| Q106          |                | 4822 209 72587           | IC, DUAL POWER OP AMP TCA0372                | HC10034170              |
| Q501          |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| Q502          |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| Q503          |                | 4822 209 33339           | IC, CD DECODER SAA7345GP/M5X                 | HC10128490              |
| Q601          |                | 4822 209 83274           | IC, NJM4560D                                 | HC10007090              |
| ▲Q801         |                | 4822 209 31712           | IC, NJM79M12FA                               | HC39512090              |
| ▲Q802         |                | 4822 209 63641           | IC, NJM79M12FA                               | HC39512090              |
| ▲Q811         |                | 4822 209 31631           | IC, NJM7805FA                                | HC38905090              |
| ▲Q851         |                | 4822 209 83829           | IC, REG. NJM79M18FA                          | HC39518090              |
| Q852          |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S | HT30001000              |
| Q853          |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S  | HT10001000              |
| Q854          |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S  | HT10001000              |
| Q901          |                | 4822 209 82362           | IC, NJM4556D                                 | HC10016090              |
| ▲FH11<br>U    |                |                          | <b>P116-MISCELLANEOUS</b>                    |                         |
| ▲FH11<br>/02  |                | 4822 070 36301           | FUSE, 1.6A 125V FBM                          | FS10160360              |
| ▲FH12<br>U    |                |                          | FUSE, 630MA 250V BS LISTED                   | FS10063850              |
| ▲FH12<br>/02  |                | 4822 070 36301           | FUSE, 1.6A 125V FBM                          | FS10160360              |
|               |                |                          | FUSE, 630MA 250V BS LISTED                   | FS10063850              |
| JE01          |                | 4822 267 31691           | JACK, FADER                                  | YJ01003870              |
| JF01          |                |                          | JACK, 37 PIN FFC                             | YJ06011070              |
| JF03          |                | 4822 267 41009           | TERMINAL, 2P RCA (RC-5 IN/OUT)               | YT02020890              |
| JM01          |                | 4822 265 30473           | PLUG, 6P                                     | YP06003420              |
| JM02          |                | 4822 265 30482           | PLUG, 4P                                     | YP06003440              |

| POS.<br>NO.   | VERS.<br>COLOR | PART NO.<br>(For EUROPE) | DESCRIPTION  | PART NO.<br>(For U/K/F)  |
|---|----------------|--------------------------|--|--------------------------|
| JT02  |                |                          | TERMINAL, 1P RCA DIG. OUT                          | YT02010780               |
| JW07  |                | 4822 265 41351           | JACK, ZC-015 15P [PMD321]                          | YJ07007960               |
| J103<br>J601  |                | 4822 265 41351           | JACK, 15P<br>TERMINAL, 2P RCA ANA. OUT<br>[PMD320] | YJ07007960<br>YT02021210 |
| LT01  |                | 4822 142 60388           | PULSE TRANSF.                                      | TP41042010               |
| ▲L001<br>U  |                |                          | POWER TRANSF.                                      | TS15734030               |
| ▲L001<br>/02  |                | 4822 146 21749           | POWER TRANSF.                                      | TS15734010               |
| ▲SH91   |                | 4822 276 13364           | PUSH SW, POWER SW                                  | SP01011990               |
| XF01  |                | 4822 242 72066           | CER. VIB., 8.0MHZ                                  | FQ08004010               |
| XP01  |                | 4822 242 72334           | X'TAL 16.9344MHZ                                   | JX16002260               |
| X101  |                | 4822 242 81536           | CER. VIB. 8.46MTW                                  | FQ08464010               |
| <b>P126-HF CIRCUIT BOARD</b>                          |                |                          |  |                          |
| <b>P126-CAPACITORS</b>                                |                |                          |  |                          |
| C101  |                |                          | CER. 100 PF ±10%                                   | DA16101110               |
| C102  |                |                          | CER. 47 PF ±5%                                     | DA15470110               |
| C103  |                |                          | CER. 47 PF ±5%                                     | DA15470110               |
| C104  |                |                          | CER. 18 PF ±5%                                     | DA15180120               |
| C105  |                |                          | CER. 150 PF ±10%                                   | DA16151110               |
| C106  |                | 4822 124 41534           | ELECT. 10 µF 25V                                   | OA10602520               |
| C107  |                |                          | CER. 0.047 µF +80%-20%                             | DA17473110               |
| C108  |                |                          | CER. 150 PF ±10%                                   | DA16151110               |
| C109  |                |                          | CER. 150 PF ±10%                                   | DA16151110               |
| C110  |                |                          | CER. 330 PF ±10%                                   | DA16331110               |
| <b>P126-RESISTORS (COMMON)</b>                        |                |                          |  |                          |
| CARBON FILM FIXED RESISTOR,<br>±5% 1/6W:<br>R101-R106 |                |                          |  |                          |
| <b>P126-SEMICONDUCTORS</b>                            |                |                          |  |                          |
| Q101  |                | 4822 130 61748           | TRS. 2SC2668-O                                     | HT32668100               |
| Q102  |                | 4822 130 42298           | TRS. 2SC536SP, 2SC2458,<br>2SC3311, 2SC1740S       | HT30001000               |
| Q103  |                | 4822 130 42715           | TRS. 2SA608SP, 2SA1048,<br>2SA1309, 2SA933S        | HT10001000               |
| <b>P126-MISCELLANEOUS</b>                             |                |                          |  |                          |
| J101  |                | 4822 265 41349           | JACK, TOC-L12X-A1 12P                              | YJ07007950               |
| J102  |                | 4822 265 41351           | JACK, ZC-015 15P                                   | YJ07007960               |
| <b>P136-H.P CIRCUIT BOARD</b>                         |                |                          |  |                          |
| <b>P136-CAPACITOR</b>                                 |                |                          |  |                          |
| C980  |                |                          | CER. 0.022 µF +80%-20%                             | DK18223310               |
| <b>P136-MISCELLANEOUS</b>                             |                |                          |  |                          |
| J900  |                | 4822 267 31691           | JACK, HEAD PHONE                                   | YJ01003870               |